This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

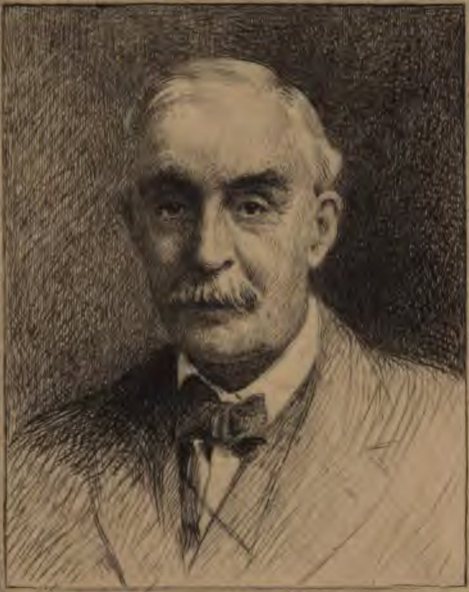
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

G
26
C54
900

A 407244

LONGMANS'
SCHOOL GEOGRAPHY
FOR
SOUTH AFRICA

G. G. CHISHOLM
AND
J. A. LIEBMANN



FROM THE LIBRARY OF
ROBERT MARK WENLEY
PROFESSOR OF PHILOSOPHY
1896 — 1929
GIFT OF HIS CHILDREN
TO THE UNIVERSITY OF MICHIGAN

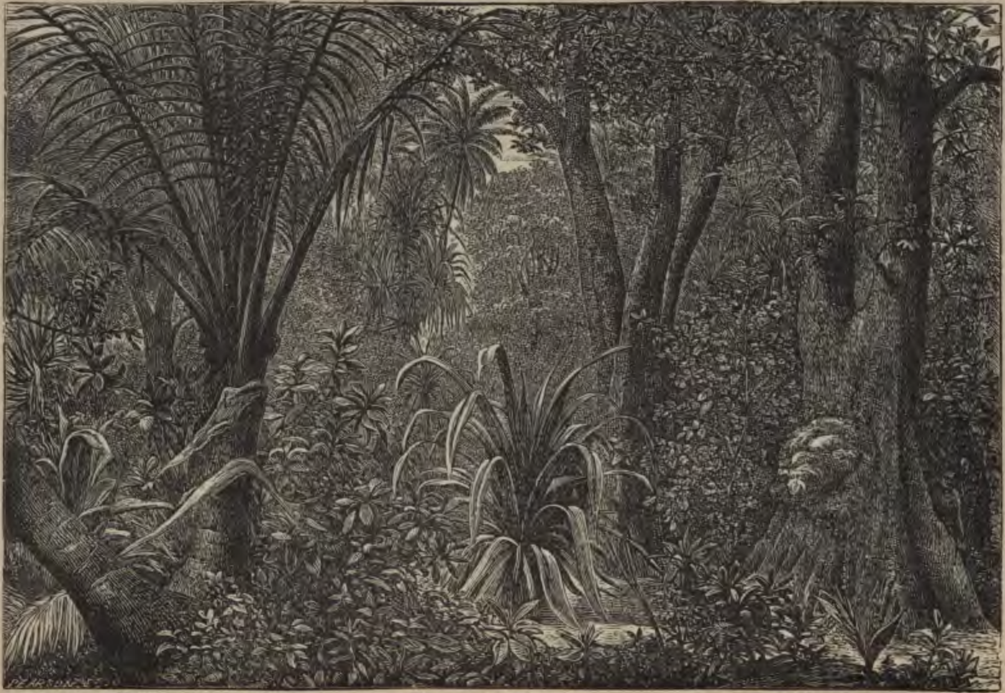
WHWBicknell del et sc
1938

H. M. Henley Esq.

with the author's compliments

A

N/1.


Coco-nut Palm.
Young coco-nut palm.
Young screw-pine.
Bread-fruit tree.

SCENE IN A TROPICAL FOREST (Caroline Islands).

LONGMANS'

SCHOOL GEOGRAPHY

FOR SOUTH AFRICA

BY

GEORGE G. CHISHOLM, M.A., B.Sc.
FELLOW OF THE ROYAL GEOGRAPHICAL AND STATISTICAL SOCIETIES; LONDON
UNIVERSITY EXTENSION LECTURER; EXTERNAL EXAMINER
IN POLITICAL AND ECONOMIC GEOGRAPHY TO
THE VICTORIA UNIVERSITY

AND

PROF. JAMES ALEX. LIEBMANN
F.R.G.S., F.R.S.L., F.R.HIS.S., M.PHIL.S., M.S A.PHIL.S.
ETC. ETC.
ROYAL MILITARY COLLEGE, CAMBERLEY

NEW EDITION

LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW, LONDON
NEW YORK AND BOMBAY
1900

All rights reserved

With numerous Maps, 4to, 1*s.* 6*d.* boards; 2*s.* cloth.

LONGMANS' JUNIOR SCHOOL GEOGRAPHY.

BY

GEORGE CHISHOLM, M.A., B.Sc., F.R.G.S., &c.

⁂ The Maps form the special characteristic of this work. They are mostly of two kinds. Those of one set are chiefly intended to be copied by the pupils, and are so simple as to be capable of being copied by boys and girls rapidly, and therefore frequently. It is expected that after a few repetitions the learners will be able to draw them from memory, and thus have the most important relations of place fixed in their minds in the firmest manner possible. Those of the other set represent the nature of the chief products of different regions, and the density of the population according to a uniform scale.

LONGMANS, GREEN, AND CO.
LONDON, NEW YORK, AND BOMBAY.

gt-Wenley Lib
3-10-39

PREFACE

TO THE ENGLISH EDITION.

It is an unusual thing to prefix a long preface to an ordinary school-book, but the position which geographical teaching at present holds in this country makes it necessary to explain why a new departure is attempted, and what the nature of the new departure is. It is not long since we were told, on the authority of the Royal Geographical Society's Inspector of Geographical Education, that in this country geography is as a rule almost entirely neglected as a subject of education; and that among other reasons for this state of matters is the want of text-books fitted to aid teachers in putting the subject on a more satisfactory basis. We are also informed by the same authority that 'Germany may be taken as the model which all the other Continental countries are following, as far as their special circumstances will permit'; and it may be confidently asserted that all those who have bestowed adequate attention upon this matter are satisfied that, as with regard to the general methods of geographical teaching, so with respect to text-books in particular, Germany does in fact furnish us with the models most worthy of imitation. Why it should be so is easily understood when we consider the place which geography holds in that country in the universities and in the higher education generally; but in order to appreciate fully the service which Germany has rendered to geographical education, it is necessary to take into account the length of the experience of German educationists in the working of an advanced system of education in all departments.

In a country in which there has long been ample provision both for elementary education and for all intermediate stages leading up to the universities and to the best equipped commercial and technical schools, the teachers have at least been able to learn what is possible and what is impossible in school-years. Knowing that a limited period must be turned to account for the thorough teaching of a great variety of subjects, they have learned that it is impossible for school-teaching to be both thorough and full of minute detail. They have learned, accordingly, one of the most important of all lessons in educational method—to distinguish between what is indispensable as a groundwork and what it is better to neglect if the pupils are really to be educated, instead of having their minds overloaded, distracted, embarrassed, and perplexed.

This, then, is the particular in which the author of the present text-book has most earnestly endeavoured to guide himself by German examples, and he believes that on this feature it is impossible to lay too much stress. To those who are familiar with English text-books of geography the work now submitted to the public will hence perhaps appear more remarkable for what it omits than for what it contains.

But while this is really the case, while the author has really sought to exclude from the text-book almost all details which the pupils cannot be expected to keep permanently in mind, and can hardly attempt to keep in mind without doing injury in some way to their mental training, he has kept constantly before him the necessity for taking care that what the text-book does contain should be really foundational—should consist of what is most effective as discipline, most important to know.

In making this endeavour he has first of all sought to draw a mental picture of the different countries and regions of the world, giving due relief to what is most distinctive in each region. For this reason all countries are not treated according to a uniform plan, as if all the variety to be found on the surface of the globe could be held as adequately described by an enumeration of similar particulars under the same headings.

Secondly, while in order to make the picture of any country coherent, the relation between different features and characteristics is always kept in view, special prominence is given to the relation of cause and effect, so as to enable the pupils to realise that in geography there is something to understand as well as to commit to memory; in other words, so as to make geography a mental discipline as well as a body of instruction. Hence in selecting the particulars for notice under different headings special attention has been given to such as illustrate general laws. With this in view frequent references are made from the body of the book to the Introduction—which deals with the general facts of physical geography—and to other passages of the text which it is instructive to compare with those from which the reference is made. The Introduction, it may here be explained, is designed primarily for teachers, and is not intended to form part of the course for the pupils until they have gone through the whole of the body of the book; though it is expected that the references of which mention has just been made will always be taken advantage of to elucidate the text and heighten its interest.

With regard to other features of this text-book, it may be noted that it is assumed throughout that no adequate teaching in geography can be given without the aid of maps. From the map alone can be gained a satisfactory knowledge of the position of different places, and from good maps it is possible, in some respects, to acquire a much more accurate idea of the character of the surface of the globe than can be gained from any description. A text-book ought, in fact, to be supplementary to an atlas and other aids to geographical education, and by no means to attempt to supersede them. Hence in the present text-book much is omitted, not as being useless, but as being out of place.

In the spelling of foreign names an attempt is made to secure an approximation to consistency, for it is obvious that to accustom boys and girls to a rational system from their school-days is the likeliest way to arrive ultimately at uniformity of practice in this respect. The rules adopted by the Council of the Royal Geographical Society. and repeated at the end of this Preface, have, therefore, been followed in the text. It need hardly be explained that no more than an approximation to consistency is thereby secured, seeing that, as stated in Rule 2, many names—including most of those which naturally find a place in a school geography—are already too familiar under spellings not in harmony with the rules laid down. This, however, is matter for little regret, inasmuch as it forms in most cases no obstacle to the ultimate attainment of uniformity of practice.

The illustrations have been selected to exhibit some of the most characteristic scenes in different parts of the world, and most of them have been specially engraved by Mr. G. Pearson for the present work. For permission to use the diagram on p. 39 the author is indebted to the kindness of Professor Kirchhoff of the University of Halle, whose admirably compact *Schulgeographie* has served him to a large extent as a model for the present work, so far as was possible in the case of an English school-book, and so far as it is designed for pupils of the same standing as those for whom the present text-book is adapted.

Among other works to which the author has to express his special acknowledgments are: Professor Supan's *Lehrbuch der Geographie*; and, above all, the fifth edition (by Professor Wagner) of Guthe's *Lehrbuch der Geographie*; and for the British Isles the various works of Mr. Green, including the *Short Geography of the British Islands*, by J. R. Green and A. S. Green.

The author has also much pleasure in acknowledging his indebtedness to Mr. C. Colbeck, M.A., and Mr. F. E. Marshall, M.A., of Harrow School, for numerous improvements suggested by them in reading the proofs; but it is right to add that for the book as it stands the author is alone responsible.

PREFACE

TO THE SOUTH AFRICAN EDITION.

The author of the South African portion of this work begs to acknowledge his indebtedness to numerous and valuable geographical and statistical authorities, among whom he must specially mention: "Argus" Annual, 1890; Bluebooks (Imperial, Colonial, &c.); Chapman's Travels; "Matabeleland," a Lecture by F. Mandy, Esq.; Official Handbook of the Cape of Good Hope; Official Handbook of Natal; Official Reports of the Orange Free State and the South African Republic; Proceedings of the Royal Geographical Society; Proceedings of the Royal Colonial Institute; "Scenes and Adventures in Great Namaqualand," by the Rev. B. Ridsdale; as well as to several Government Officers of the various Colonies and States in South Africa for information so readily placed at his disposal; and to Mr. J. L. Cobbin for assistance in reading the proofs.

J. A. LIEBMANN.

Late of Dio. Coll., Rondebosch, near
Cape Town, South Africa.

NOTE.

In the paragraph devoted to latitude and longitude at the head of the principal sections into which the text is divided, a number of places in nearly the same latitude are always given. Those places which do not belong to the country or region with which the section deals are given in parentheses; and where they lie less than 180° to the west of the place named within such country, or region, they are printed to the left of that place, otherwise to the right.

The figures given in the text are always more or less round numbers, and especially where they represent variable numbers like populations, or indefinite numbers, like the average height of plateaux.

Towns containing 100,000 inhabitants or more are printed in capitals. Where the population exceeds 200,000 it is stated in thousands in parentheses after the name of the town. Thus, **LIVERPOOL** (600) means that Liverpool has, in round numbers, 600,000 inhabitants. In the South African section the populations are given in brackets in round numbers in full.

The area of Great Britain, including the small islands adjacent—an area frequently employed in the text as a standard of comparison—is, in round numbers, 90,000 square miles. That of the island of Anglesey, which is sometimes similarly used, is about 300 square miles; that of Scotland (including islands) upwards of 30,000 square miles; that of Wales about 7,400 square miles.

For the sake of comparison it is also useful to bear in mind that, according to the estimate of the population of the British Isles for 1885, the average density was then just 300 to the square mile.

RULES ADOPTED BY THE COUNCIL OF THE ROYAL GEOGRAPHICAL SOCIETY AS TO THE SPELLING OF NATIVE NAMES OF PLACES.

1. No change will be made in the orthography of foreign names in countries which use Roman letters: thus Spanish, Portuguese, Dutch, &c., names will be spelt as by the respective nations.

2. Neither will any change be made in the spelling of such names in languages which are not written in Roman character as have become by long usage familiar to English readers: thus Calcutta, Cutch, Celebes, Mecca, &c., will be retained in their present form.

3. The true sound of the word as locally pronounced will be taken as the basis of the spelling.

4. An approximation, however, to the sound is alone aimed at. . . .

5. The broad feature of the system is that vowels are pronounced as in Italian, and consonants as in English.

6. One accent only is used, the acute, to denote the syllable on which stress is laid. . . .

7. Every letter is pronounced. When two vowels come together each one is sounded, though the result, when spoken quickly, is sometimes scarcely to be distinguished from a single sound, as in *ai*, *au*, *ei*.

8. Indian names are accepted as spelt in Hunter's *Gazetteer*.

The amplification of these rules is given below:—

Letters	Pronunciation and Remarks	Examples
a	*ah*, *a* as in *father*	Java, Banána, Somáli. Bari.
e	*eh*, *e* as in *benefit*.	Tel-el-kebír, Oléleh, Yezo, Medina, Levúka, Peru.
i	English *e*; *i* as in *ravine*; the sound of *ee* in *beet*. Thus not *Feejee*, but	Fiji, Hindi.
o	*o* as in *mote*	Tokio.
u	long *u* as in *flute*; the sound of *oo* in *boot*. Thus, not *Zooloo*, but	Zulu, Sumatra.
	All vowels are shortened in sound by doubling the following consonant.	Yarra, Tanna, Mecca. Jidda, Bonny.
	Doubling of a vowel is only necessary where there is a distinct repetition of the single sound.	Nuulúa, Oosima.
ai	English *i* as in *ice*	Shanghai.
au	*ow* as in how. Thus, not *Foochow*, but	Fuchau.
ao	is slightly different from above	Macao.

Letters	Pronunciation and Remarks	Examples
ei . . .	is the sound of the two Italian vowels, but is frequently slurred over, when it is scarcely to be distinguished from *ey* in English *they*.	Beirút, Beilúl.
b . . .	English *b*.	
c . . .	is always soft, but is so nearly the sound of *s* that it should be seldom used. If *Celebes* were not already recognised it would be written *Selebes*.	Celebes.
ch . . .	is always soft as in *church* . . .	Chingchin.
d . . .	English *d*.	
f . .	English *f*. *ph* should not be used for the sound of *f*. Thus, not *Haiphong*, but	Haifong, Nafa.
g . . .	is always hard. (Soft *g* is given by *j*) .	Galápagos.
h . . .	is always pronounced when inserted.	
j . . .	English *j*. *Dj* should never be put for this sound.	Japan, Jinchuen.
k . . .	English *k*. It should always be put for the hard *c*. Thus not *Corea*, but	Korea.
kh . . .	The Oriental guttural	Khan.
gh . . .	is another guttural, as in the Turkish .	Dagh, Ghazi.
l m n . .	As in English.	
ng . . .	has two separate sounds, the one hard as in the English word *finger*, the other as in *singer*. As these two sounds are rarely employed in the same locality, no attempt is made to distinguish between them.	
p . .	As in English.	
q . . .	should never be employed; *qu* is given as *kw*.	Kwangtung.
r s t v w x	As in English	Sawákin.
y . .	is always a consonant, as in *yard*, and therefore should never be used as a terminal—*i* or *e* being substituted.	Kikúyu.
z . . .	English *z*	Zulu.
	Accents should not generally be used, but where there is a very decided emphatic syllable or stress, which affects the sound of the word, it should be marked by an acute accent.	Tongatábu, Galápagos, Paláwan, Saráwak.

To this statement it need only be added that, in accordance with Rule 6 and the note at the end, accents are used in this text-book in the spelling of Indian names only where they indicate stress; that in certain more or less familiar spellings (such as Punjab, Bussora) *u* has the sound which it has in *but*; and that in some Russian names the combination *zh* is used to represent the sound of *z* in *azure*.

CONTENTS.

INTRODUCTION.

PAGE
I. MATHEMATICAL GEOGRAPHY : 16
Form of the Earth . . 16
Movements of the Earth . 17
Rotation. Latitude and Longitude . . . 17
Revolution. The Seasons 19

II. PHYSICAL GEOGRAPHY :
Land and Water . . . 24
Changes and Agents of Change 24
Modelling of the Land . 25
Rivers 26
Dissolving Action of Rain-water 29
Springs 30
Lakes 31
General Result of the Action of Running Water 32
Marine Deposits . . 32
Emergence of Marine Deposits 33
Folding of Strata . . 34
Mountain-building . . 34
Earthquakes . . . 34
Volcanoes 35
Underground Heat . . 36
Effect of Surface Inequalities on the Habitability of the Earth . . . 37

PAGE
The Atmosphere . . . 38
Winds 38
The Ocean 42
Temperature . . . 43
Movements of the Ocean : 43
Waves 43
Tides 43
Currents . . . 45
Marine Life . . . 48
Climate 49
Temperature and Rainfall 49
Effects of the Relations of Sea and Land . 50
Effects of Marine Currents 51
Effects of Superficial Configuration . . 52
The Snow-line . . 53
Glaciers 53
Icebergs and Ocean Ice . 54
Salubrity 57
Vegetation and Animal Life 57
Man 59
Density of Population, &c. 59
The Growth and Position of Towns . . . 60
Table showing the Area and Population of the great Land-masses . . . 62

DESCRIPTION OF CONTINENTS AND COUNTRIES.

PAGE
AFRICA: GENERAL 64
- South Africa 68
  - Colonial Industries . . 89
  - The Cape Colony . . . 97
  - Kaffraria and Walvisch Bay 111
  - Natal 111
  - Bechuanaland . . . 117
  - Basutoland . . . 122
  - British Zululand . . 123
  - Matabeleland and Mashonaland 124
  - The Orange River Colony 127
  - The South African Republic 131
- The German Protectorate . 136
  - Great Namaqualand, Damaraland, Ovampoland 136
  - Portuguese East Africa . 139
- Northern and Middle Africa
  - Egypt 142
  - Independent Soudan . 142
  - Western Mediterranean States 144
  - From the Senegal to the Congo 144
  - Congo Free State . . 146
  - Portuguese Lower Guinea 147
- Eastern Africa . . . 148
- African Islands . . . 150

EUROPE: GENERAL . . . 152
- The British Isles . . 160
- Great Britain . . . 166
- Ireland 175
- France 176
- Belgium and Holland . 184
- Germany 199
- The Alps 200
- Switzerland . . . 205
- Austria-Hungary . . 210
- Eastern European Plain: Russia and Roumania . 219
- Scandinavia . . . 227
- Denmark 231
- The Iberian Peninsula . 232
- Italy 240
- The Balkan Peninsula . 248
- Colonial and other Possessions of European Powers 255

ASIA: GENERAL . . . 259
- I. Countries outside of the Monsoon Region . 262
  - Siberia 262
  - Russian Central Asia . 264
  - Caucasia and Armenia . 265
  - Turkey-in-Asia . . 268
  - Arabia 273
  - Irania 274
- II. The Monsoon Countries and their Dependencies
  - India 276
  - Ceylon 287
  - Indo-China . . . 287
  - Eastern Archipelago . 289
  - China 292
  - Korea 298
  - Chinese Central Asia . 299
  - Japan 300

AUSTRALIA AND OCEANIA . 302
- Australia 302
- The Australasian Colonies . 308
- The Australasian and Pacific Islands 315
- Polynesia 318

AMERICA: GENERAL . . 321

NORTH AMERICA: GENERAL . 322
- Greenland 325
- British North America . 326
  - A. Dominion of Canada . 326
  - B. Newfoundland . . 330
  - C. Bermudas . . . 330
- United States . . . 330
- Mexico 337
- Central America . . 340
- West Indies . . . 341

SOUTH AMERICA: GENERAL . 343
- Brazil 347
- Colonial Guiana . . . 347
- Venezuela 347
- Colombia 348
- Ecuador 348
- Peru 349
- Bolivia 350
- Chile 351
- Argentine Republic . . 351
- Uruguay 352
- Paraguay 352
- Falkland Islands . . 352

ANTARCTIC REGIONS . . 353

TABLE OF THE AREA AND POPULATION OF THE PRINCIPAL COUNTRIES OF THE WORLD 354

ILLUSTRATIONS.

FIG. PAGE

Scene in a Tropical Forest. From *Unser Wissen von der Erde.* Reduced . . . . *Frontispiece*

1, 2, 3. Diagrams to Illustrate the Seasons 20, 21

4. Diagram showing the Altitude of the Sun at Different Latitudes at Midsummer. 21

5. Diagram Illustrating the Difference in the Distribution of the Sun's Rays at the Summer and Winter Solstices in the Latitude of London 22

6. Diagram Illustrating the Increase in the Length of the Day from South to North at Midsummer in the Northern Hemisphere 23

7. Sand-Dunes, Desert of Sahara. From Nachtigal's *Sahara und Sudan* 26

8. Diagram to Illustrate the Origin of Springs. 30

9. Diagram to Illustrate the Formation of Artesian Wells . 31

10. Boiling Springs, United States. From the *Report of the Geological and Geographical Survey of the U.S.: Montana, &c.*, 1872 . 36

11. The Giant Geyser, United States. From the same . . . 37

12. Diagram to Illustrate the Effect of the Rotation of the Earth on the Direction of Winds 39

13. Winter and Summer Scenes in a London Garden . . . 53

14. Arctic Icebergs. From Hartwig's *Polar World* 55

15. A Mangrove Swamp. From *Unser Wissen von der Erde.* Reduced 58

16. Sections across Europe, Asia, and North and South America 63

17. Oasis in Fezzan. From Nachtigal's *Sahara und Sudan* . . 67

18. Sections across South Africa 71

19. Bushman. From a Photograph by Bruton, Cape Town . . . 84

20. Zulu Kaffir. From a Photograph 85

21. Diagrammatic Section, Cape Colony 99

22. Cape Town. From a Photograph by Allis Rosebank . . . 104

23. Mitchell's Pass, near Ceres. From a Photograph by Allis Rosebank 108

24. Shoshong. From Oates's *Matabele Land* 121

25. A Tembe. From Commander Cameron's *Across Africa* . . . 143

26. The Prickly Pear. 156

27. Fingal's Cave. From a Photograph 168

28. Winter Scene in the Fen Country (England). From Heathcote's *Fen and Mere* 171

29. View of the Monts Dôme. From the Plates to Scrope's *Memoir on the Geology of Central France.* Reduced 177

30. Windmills for the Draining of a Polder. From *Harper's Magazine* 185

31. Diagram Illustrating the Folding of Strata in the Alps. From Peschel's *Physische Erdkunde* 207

FIG. PAGE
32. Scene in the Saxon Switzerland. From *Unser Wissen von der Erde*. Reduced 201
33. The Aletsch Glacier. From a Photograph 203
34. The Lake of Geneva. From Hirt's *Bildertafeln* . . . 207
35. Scene in the Hungarian Pusstas. After *Stanford's Europe* . 213
36. Winter Travelling in Russia 221
37. An Encampment of Lapps. From S. Tromholt's *Under the Rays of the Aurora Borealis* 229
38. The Alhambra. From De Amicis' *L'Espagne* 239
39. Front of a Venetian Palace. From *Cassell's Picturesque Europe* 245
40. A Street in Pompeii. From *Cassell's Picturesque Europe*. Reduced 247
41. Mosque, Constantinople. From Lady Brassey's *Sunshine and Storm* 253
42. Athens. From the same 255
43. A Yurta. From Przhevalsky's *Mongolia* 265
44. Damascus. From the *Tour du Monde*. Reduced 271
45. Camel's Saddle. From Klunzinger's *Upper Egypt* . . . 273
46. A Persian Water-wheel. From E. Schlagintweit's *Indien in Wort und Bild* 279
47. Ploughing with Zebus. From the same 281
48. Mosque, Delhi. From the same. Reduced 285
49. Bangkok. From Mouhot's *Siam*. Reduced 289
50. Temple of Angkor Wat. From F. Garnier's *Indo-Chine*. Reduced 291
51. Scene in a Tropical Forest. From *Unser Wissen von der Erde*. Reduced 293
52. Lœss Terraces. From Richthofen's *China*. Reduced . . . 295
53. Chinese Gateway. From the *Tour du Monde*. Reduced . . 298
54. Pile-dwellings. From the *Narrative of the Cruise of the 'Challenger'* 317
55. An Atoll. From Lady Brassey's *Voyage of the Sunbeam* . . 319
56. Scene in the Canon Region. From the Atlas to C. E. Dutton's *Tertiary History of the Cañon District*. Reduced . . . 324
57. A Lumbering Scene. From G. A. Sala's *America Revisited* . . 328
58. St. Louis and the Mississippi. From Cassell's *Picturesque America* 331
59. Elevated Railway, New York. From the same . . . 334
60. Cliff-Dwellings. From the *Report of the U.S. Geological and Geographical Survey of Colorado and the Adjacent Territory* . 336
61. Forest Scene, Sierra Nevada, U.S. After *Harper's Magazine* 339
62. An Agave Plantation. From the *Atlas Pintoresco é Histórico de los Estados Unidos Mexicanos* 340
63. Scene in the Pampas. From Hirt's *Bildertafeln* . . . 345
64. Scene in Honda. From the *Tour du Monde* 349
65. Fragment of an Old Peruvian Wall. From Wiener's *Pérou et Bolivie* 350

THE SCHOOL GEOGRAPHY.

INTRODUCTION.

GEOGRAPHY means a Description of the Earth. No description can be complete, and the shorter it is, the more necessary is it to have a guiding principle in the description. Now it can scarcely be called in question that the kind of knowledge of the earth that is of most interest and most use to us is that of the earth as the abode of man. Some knowledge of this kind is useful, however imparted; but in order that lessons in Geography should serve the purpose of genuine education, it is requisite that the learners should be taught to understand the facts that they learn so far as they can be understood. In few words, therefore, the aim of a text-book of Geography may be stated to be this: to show the relation of the surface of the earth to its population; to show where physical conditions favour and where they hinder the growth of a dense and civilised population; where hindrances have been overcome, and where favouring conditions have been counteracted; to show how physical conditions affect the daily life of people all over the globe; to show where large and where small states have been formed, and why; to show where large and important towns are situated, and what circumstances have promoted their growth. But even this is by no means a small task; to do it fully, or even, it should rather be said, to attempt to do it fully, would occupy volumes.

To have even an elementary knowledge of the relation of the surface of the earth to its inhabitants, it is necessary for various reasons to consider the earth as a whole. First, one requires to know something about the form of the earth and its position in space. This is what is usually included under the term **Mathematical Geography**; but out of the wide range of topics comprehended under this head we may select one or two as having most bearing on the main subject which we have to keep in view. Secondly, it is needful to know something of the surface of the earth as a whole, and of the changes that take place on the surface. This is what is designated **Physical Geography.**

I. MATHEMATICAL GEOGRAPHY.

Form of the Earth.—The earth is a ball. There are several ways of proving this. (1) It is found that when we look over a level surface of large extent (such as that of the sea), objects that come in sight from a distance are always seen first at the top, the lower parts coming gradually into view as we approach them, or they us. This shows that the level surface has, in fact, a swelling which hides the lower part of a distant object whose top is visible. In other words, the surface is curved. It is found, too, that objects of the same height come into view at the same distance all round, and that shows that the curve is equal in all directions—that is, the curve of a sphere.[1] (2) It is observed that the shadow of the earth thrown by the sun on the moon in eclipses of the latter body is always round, which would not be the case unless the earth had the form of a ball. (3) It is known that different points on the surface of the earth have different points of the sky (determined with reference to the stars), exactly overhead at the same moment, and that the same distance on the surface of the earth makes almost the same angular distance between the points of the sky overhead in all parts of the earth and in all directions.

This last method of proving that the earth is round affords the means of making the most exact measurements of the form of the earth, and by this method it is found that the spherical shape is not quite perfect. There is a flattening towards two points on opposite sides, but this flattening is relatively less than we see in an orange, so that the earth may be practically treated as a round body. This enables mathematicians to draw conclusions as to all its dimensions from a single measurement. Thus, if the distance between points on its surface be measured, and means be taken to ascertain what proportion of the whole circumference that distance represents (which can be done with the aid of the stars), then we can tell not only the circumference,[2] but also the length of radius and diameter, the area of the entire surface, and the cubic contents.

---

[1] The circle bounding the view on a level surface is called the *horizon*. In the case of the heavenly bodies, all those belonging to one-half of the sky are above the horizon at one time.

[2] The circumference of the earth is the distance round its widest part; the radius, any line from the centre to the surface; the diameter, a line passing from side to side through the centre, and hence twice the length of the radius. In round numbers, the length of the radius is 4,000 miles, the circumference accordingly nearly 25,000 miles.

Movements of the Earth. First Movement: Rotation.—The earth is not fixed in space. It has two movements, which have very important effects. First, there is a spinning movement of rotation, as it is called, round a line (called the **axis**) passing through the centre of the earth, and having its ends at the points towards which the surface is observed to become flattened. This line always points in the same direction, and the fact of the movement is observed with the aid of the heavenly bodies, the stars and the sun and moon. The movement is from west to east, and as it brings the people on the earth face to face with different parts of the sky, and consequently different stars, it makes it appear as if the stars were revolving from east to west round the earth, or rather round the axis pointing to a fixed spot in the sky. The spots towards which the opposite ends of the axis points are called **the poles of the heavens, the North Pole** and the **South Pole,** and the same names are given to the ends of the axis itself. In the case of the North Pole, there is a bright star very near the fixed point of the sky, and that star is therefore called the **pole star**; by looking at it on a clear night the inhabitants of the northern hemisphere can always tell the direction in which the North Pole of our earth lies.[1]

The importance of the movement of rotation to the inhabitants of the earth arises from the fact that it causes the alternation of **day and night,** by bringing at different times different parts of the earth opposite the sun.

Latitude and Longitude.—This movement of the earth has also the practical advantage of giving us two fixed points with reference to which we can determine the position of other points on the surface.

Circles are imagined as passing round the earth, and through both poles. Each of these is divided into 360 intervals called degrees, each of which subtends an angle of one degree (or $\frac{1}{90}$th of a right angle) at the centre of the earth.

A circle conceived as crossing these circles at points 90° from each pole is called the **equator,** because it divides the surface of the earth into two equal parts called the **Northern** and **Southern Hemispheres.**

---

[1] The most convenient way of ascertaining the direction of the North Pole is by means of the compass, the essential part of which is a magnet suspended on a pin by the middle. When so suspended, a magnet always points more or less to the north and south; but it does not point exactly in that direction, and its divergence from that direction differs in different places and at different periods. There are slight variations in the direction in the course of the day, more considerable variations in the course of the year, and still more considerable variations in the course of longer periods. At Greenwich the compass-needle points at present (1891) about 16½°, in South Africa about 25°-30° to the west of north.

Other circles conceived as crossing those which pass through the poles, each at some fixed number of degrees from the equator, are called **parallels of latitude.** Each of these parallels is clearly at one uniform distance from the equator throughout, as also from any other parallel of latitude. Hence a degree of latitude would be everywhere of the same length if the earth were an exact sphere, but it is in fact slightly longer near the poles, in consequence of the flattening above referred to.

Degrees of latitude are numbered from the equator towards either pole. There are therefore 90 degrees of latitude to the north, and 90 to the south of the equator. Each degree is divided by similarly drawn circles into 60 **minutes**, and each minute into 60 **seconds.** Degrees, minutes, and seconds are respectively represented by the signs ° ′ ″.

The circles which pass through the poles are called **circles of longitude.** Half such a circle is also called a **meridian**,[1] because all places on it have noon at the same instant. It is then midnight at all places on the other half of the same circle.

Longitude is measured by degrees which denote the angles which the planes of the successive meridians make with one another. There is no natural starting-point from which to measure longitude; hence different starting-points have been chosen. That which is now generally adopted is the one that passes through the Royal Observatory at Greenwich. From it 180 degrees of longitude are counted west, and 180 east.

It thus appears that we can define the position of any spot on the earth's surface by determining its longitude and latitude. These can be ascertained by observations of the sun and stars, and the position of that place can then be accurately laid down on the map. A town which is 56° 30′ N. latitude and 17° 14′ E. longitude is at the point where the parallel and meridian named meet.

Since the meridians converge towards the poles, and are most widely separate at the equator, the distance covered by one degree of longitude diminishes continually as you follow the meridians from the equator towards the pole. Thus at the equator it is rather more than 69 miles, at latitude 45° rather less than 49 miles, at latitude 89° (one degree from the pole) only about one mile and a fifth. Hence the length of each parallel of latitude, which is divided into 360 such degrees, continually diminishes also. Now a parallel of latitude represents the daily motion of any point on it. Therefore the higher the latitude of any place the less is its velocity from the rotation of the earth.

Since the sun passes over every meridian once in twenty-four hours, it passes through 360° of longitude in that time, or 1° in four minutes of time. Hence noon is 4 minutes later for every degree of longitude that any place is west of Greenwich, and earlier by 4 minutes for every degree that it is east of Greenwich.

---

[1] Lat. *meridies*, midday.

Second Motion of the Earth: Revolution.—The second motion of the earth is also detected by means of the heavenly bodies. When we observe the sun at rising or setting all through the year, we find that the stars last seen near the point of rising or first seen near the point of setting are not always the same. The sun appears to describe a circle in the heavens in the course of a year, constantly moving towards stars farther east. The path in which the sun thus appears to move is called the **ecliptic**, because it is that tract of the sky in or near which eclipses take place. We now know that it is not a movement of the sun itself, but a movement of the earth round the sun causing the latter body to come in succession opposite different parts of the sky. The earth is, in fact, only one of several bodies called **planets** which move round the sun, and form with it the solar system; the other planets being stars, which are observed to change their position in comparatively short periods among the other stars. The moon is an attendant on the earth or satellite, which moves in the same way round our globe at a distance of about 240,000 miles (sometimes greater, sometimes less). The distance of the earth from the sun also varies a little.[1] The average distance is about 93 millions of miles, or nearly 400 times that of the moon.[2]

The Seasons.—This motion of the earth round the sun is the cause of the seasons. It is so because the axis of the earth always points to the same spot in the heavens, and is not at right angles to the plane of the earth's orbit, but is inclined to that plane at an angle of 23½°. The effect of the tilt of the axis away from the perpendicular is at once apparent on comparing Figs. 1 and 2. Fig 1 shows the position of the axis in which the sun would be always overhead at the equator, and in which there would be an alternation of equal days and nights all over the globe all the year round. Fig. 2 shows the actual position of the axis at two opposite points of the orbit, in one of which the sun is overhead at a parallel of latitude as far as possible to the north of the equator (23½°), and in the other of which it is overhead at the corresponding parallel south of the equator. The former is the midsummer position for the northern hemisphere (June 21), the latter that of midwinter for the same hemisphere (Dec. 21). Now it will be observed that in both positions there is a circle round one pole within which no light can reach the earth from the sun during an entire rotation, and at the opposite pole another circle which will remain constantly in daylight. The distance of each of these latter circles from the respective poles is again 23½°. The parallel of latitude at which the sun is directly overhead in its midsummer position for the northern hemisphere is called the **Tropic of Cancer**, that in which the same thing happens at midwinter, the **Tropic of Capricorn**, and the circles which lie at the same distance from either pole are called respectively the **Arctic Circle** (in the northern hemisphere) and the **Antarctic** (in the southern).

---

[1] The path or orbit in which the earth moves is not an exact circle but an ellipse, so nearly a true circle that if its precise form were drawn on paper it could scarcely be distinguished from a circle by the eye. The sun is in one of the foci of the ellipse, consequently nearer one end of it than the other: hence the variations in distance spoken of in the text. The moon has a similar orbit.

[2] Seeing that the sun and moon appear nearly equal to the eye, while the distance of the former body from the earth is so enormously greater than that of the latter, it follows that the sun must be enormously larger than the moon. The diameter of the sun is, in fact, more than a hundred times as great as that of the earth; that of the moon not much more than one-fourth as great. Within the body of the sun there would be room enough for both earth and moon at the distance by which they are actually separated from each other, and even for the moon to revolve round the earth without passing far beyond the centre of the sun, if it touched the outer edge in one part of its orbit.

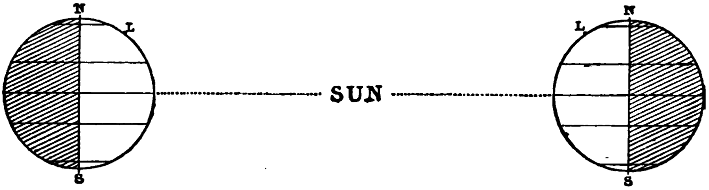


FIG. 1.—(L indicates the latitude of London.)

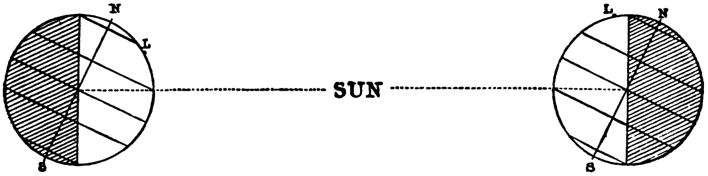


FIG. 2.—(L indicates the latitude of London.)

Fig. 3 illustrates the gradual passage of the earth from one position to another, and shows that in passing from the midsummer to the midwinter position of the northern hemisphere, and again from the latter to the former, the earth reaches two positions, the **vernal** and **autumnal equinoxes** (March 21, September 23), in which the sun is directly overhead at the equator, and in which day and night are equal all over the world. Between the vernal and autumnal equinoxes the sun is overhead at some point or other in the belt between the equator and the Tropic of Cancer, and the nearer it is to the latter the larger is the circle of perpetual light round the North Pole and of perpetual darkness round the South. Hence, too, within the Arctic Circle, the nearer a place is to the North Pole the longer will be its periods of light in summer and darkness in winter. The same is true of the Antarctic Circle and the South Pole. At either pole the periods of light and darkness last about six months. The diagram thus also makes it plain that winter and summer occur at opposite periods of the year in the northern and southern hemispheres.

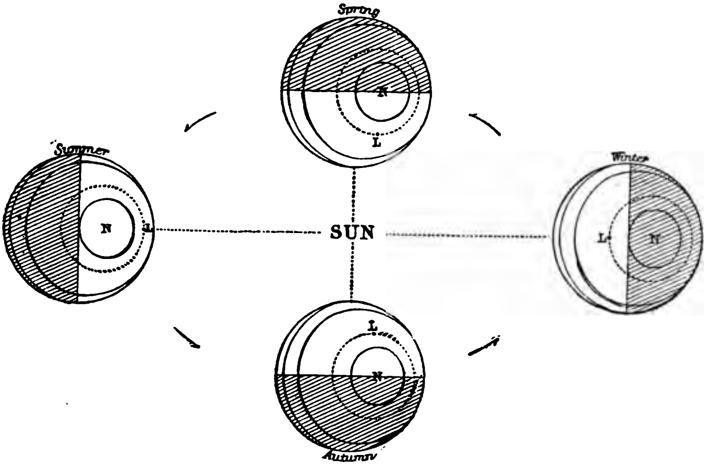


FIG. 3.—(L indicates the latitude of London.)

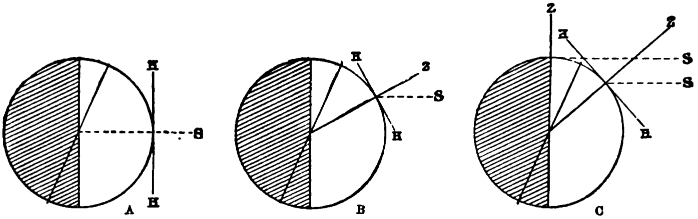


FIG. 4.—Illustrating the altitude of the sun at midsummer in the northern hemisphere, A at the Tropic of Cancer, B at the latitude of London, C at opposite points on the Arctic Circle. Z the zenith.

The areas of the earth bounded by the circles just mentioned are called **zones** or belts, and receive special names from the general effect of the heat of the sun within them. The strength of the sun's rays on the surface of the earth increases with the height of the sun—first, because the higher the sun is in the sky the smaller is the surface on which its rays are expended, and, secondly, because the higher it is the less is the thickness of the atmosphere through which the rays pass, and the less heat therefore is intercepted in the passage. An examination of figs. 4 and 5 will make these facts plainer. In fig. 4 it is seen that the altitude of the sun, or the angle which the line pointing to S makes with the horizon (H), steadily diminishes from the Tropic of Cancer to the furthest limit of the Arctic Circle, on one point of which the sun is just on the horizon. Fig. 5 shows the effect of differences in the height of the sun on the distribution of an equal band of rays (*a b*) on the surface of the earth (*c d*).

From the facts above stated, it follows that the part of the earth within the tropics, where the sun is always overhead at some part, is the hottest as a whole, and is for that reason called the **torrid zone**; the parts round the poles are called the **north and south frigid zones**, as being the coldest; and the intervening zones are called the **north and south temperate zones**. But we shall afterwards see that there are other circumstances besides the height of the sun which have an important effect on climate, and that these consequently are not true zones of climate, but merely zones of illumination.

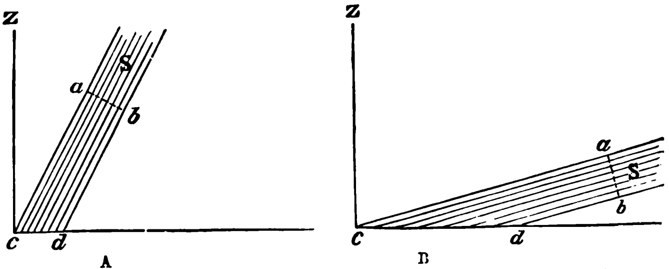


FIG. 5.—Showing the difference in the distribution of the sun's rays at London at midsummer (A), and at midwinter (B).

Though the temperate zones have a regular alternation of day and night all the year round, it must be borne in mind that there is no sudden increase in the length of daylight as we cross the Arctic or Antarctic Circle. The days of summer become longer, those of winter shorter, the nearer we advance to either pole. This will be at once plain from Fig. 6, which shows the extent of daylight on the earth when the sun is in its midsummer position for the northern hemisphere (directly overhead at the Tropic of Cancer), and when it is midday at London. It is clear that all places in latitude 50° N. are then in daylight from rather more than 120° W., where the sun is just rising, to rather more than 120° E., where it is just setting. There are therefore more than 240° of this parallel in light, and since the earth turns through 15° in an hour, a place in latitude 50° will have more than 16 hours of daylight. Similarly, a place in latitude 20° N. will have 13½ hours of daylight. It follows that, though latitude is no sure indication of climate, places in the same latitude agree with one another at all periods of the year in the length of the day—a fact of importance with reference to the habitability and civilisation of the earth in more ways than one. It is the long days of summer which enable grain to be grown in the short time available in one or two parts of the world near the northern limit of the temperate zone (in Norway even beyond it); and it is at least worthy of note that all the oldest civilisations both in the Old World and the New (in the Old World, those of China, India, Assyria, Egypt, Greece, Rome; in the New World, those of Mexico and Peru) rose in latitudes where the shortest day is nearly ten hours long or longer.[1]

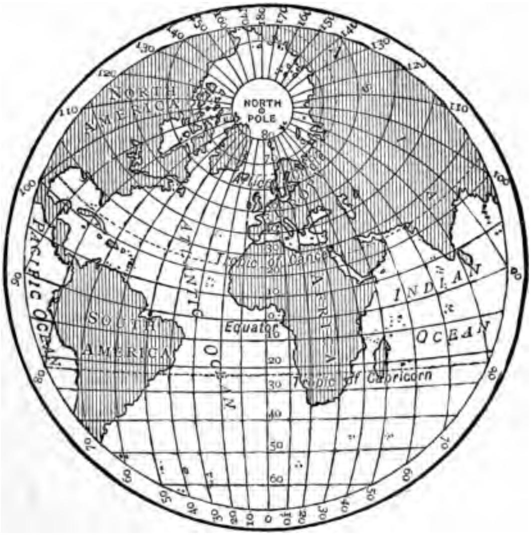


FIG. 6.

---

[1] This advantage enables artificial light to be more easily dispensed with—a matter of no little consequence where artificial light is dear, or before the advance of civilisation made it cheap.

II. PHYSICAL GEOGRAPHY.

Land and Water.

The total area of the water surface of the earth is about 144½ millions of square miles, that of the land surface about 55½ millions; the ratio of the one to the other consequently about 11:4. Three-fourths of the land surface of the earth lies in the northern hemisphere; and, what is still more important, the two great land masses of the northern hemisphere, North America with Greenland and the Eurasian[1] continent, spread out in the east and west so as to leave only narrow communications with the Arctic Ocean, while the two great continents of the south, South America and Africa, taper to narrow peninsulas, leaving wide stretches of ocean between each other. The freedom of communication between the Arctic Ocean and the South is found to be still further diminished when we take the depth into consideration. Behring's Strait has an average depth of less than 60 fathoms, and a submerged bank at a depth of under 500 fathoms connects Iceland with Europe. Less is known about the depth of the Antarctic Ocean; but, so far as it has been explored, the depth would appear to decrease gradually southwards.

When eastern and western hemispheres are compared the greater proportion of land is found in the former; and when we divide the earth into two hemispheres, one containing the greatest possible amount of land and the other the same of water, it is found that Great Britain as a whole occupies nearly the centre of the former. The average depth of the ocean is enormously greater than the average height of the land. The former is estimated at about 2,000 fathoms or 12,000 feet, the latter at about 1,500 feet, so that the ocean could receive all the land of the earth above water's edge at least twenty times over. The continents must therefore be conceived as vast plateaux[2] rising to so great a height above the ocean bed that the mountains on their surface are in respect of their mass relatively insignificant.

Changes and Agents of Change.

The outlines of the continents are not permanent. There is the clearest evidence to show that sea and land are constantly, though slowly, changing places to a certain extent. On the other hand, it has now been shown to be extremely probable that the great oceans as a whole have occupied the present great troughs from a period incalculably remote, and that the continents, though submerged now at one place, now at another, have remained similarly, as a whole, pretty much in their present positions. The margins of the sea and land have been mostly subject to change, and the whole of what may be called the unstable area (liable to be at one time sea, at another land) has been estimated at equal to about one-fourth of the entire surface of the earth. The unstable area of the ocean is generally indicated by its comparative shallowness.

---

[1] Eurasia is a name frequently applied to the combined continents of Europe and Asia.

[2] A plateau or table-land is a region or district with a uniformly high or moderately high level (above the sea or above the surrounding country).

Modelling of the Land.—Various agents are constantly at work reducing the harder parts of the crust of the earth[1] to small particles and even to powder, and others in carrying this crumbled material from higher to lower levels. There are three chief crumbling agents. (1) In dry countries, which are all liable to extremes of heat and cold within short periods,[2] these **variations of temperature** causing alternate expansion and contraction of the surface of the rocks, lead to the splitting off of scales and fragments, which become strewn at the base. In the absence of water, wind is the principal agent in carrying these fragments to still lower levels; for, though the dust may be whirled high in the air and may even settle on higher levels after a particular gust, the tendency on the whole is downwards. By this means vast areas in the interior of Africa and North America have got covered with loose matter brought from a distance of thousands of miles; in Asia great cities (Babylon and Nineveh) have been buried, and wide and deep valleys are said to have been filled by the same process.[3] In distributing the loose matter which they carry the winds act differently in different circumstances. In some cases, where they blow with constancy over vast plains or level plateaux, they build up **sand-dunes** or mounds of sand, with a gentle slope on the side turned towards the wind, and a steeper slope on the opposite side. Sand-dunes so formed are not fixed in position, but travel slowly along in the direction of the wind, the change in place being due to the same process as that by which they are formed. The loose sand from the gentle slope on the wind side is blown over the top and falls down the steeper slope on the other side, while fresh sand is constantly raised from the plain. In other places where the winds are less constant the loose sand may be distributed pretty equally over the surface, and hence in dry regions mountains are often seen to rise with remarkable abruptness from very level plains at their base.[4] (2) In moist countries, with a vigorous vegetation but with little frost, the work of disintegration is principally performed by the **roots of plants**, which as they thicken act as powerful wedges and open the cracks even in hard rocks, and in some cases by their juices dissolve the rock; but (3) **frost** is probably the most powerful crumbling agent of all, and attacks the rocks all the more fiercely the more they are ramified by fissures and permeated by pores. Rain fills the cracks and enters the pores, and, as water in freezing expands with great force, large masses or small particles are burst off, and ultimately fall down through their own weight, or are easily washed off by subsequent rains. Every muddy drop that we see trickling down a hill slope after a shower of rain is a sign and an illustration of the processes just described, and thus enables us to see how the valleys are widened and the mountains carved. At the bottom of the valley the action of the rain is continued by the rills and larger streams which are ultimately formed.

---

[1] The term crust of the earth is applied to the few thousand feet beneath the surface which can be brought within the reach of our observation, and is not intended to imply that the outer part of the earth is a hard coat of armour surrounding a fluid interior.

[2] See p. 52-3.

[3] See p. 294 *n.* 8.

[4] See cut, p. 121.

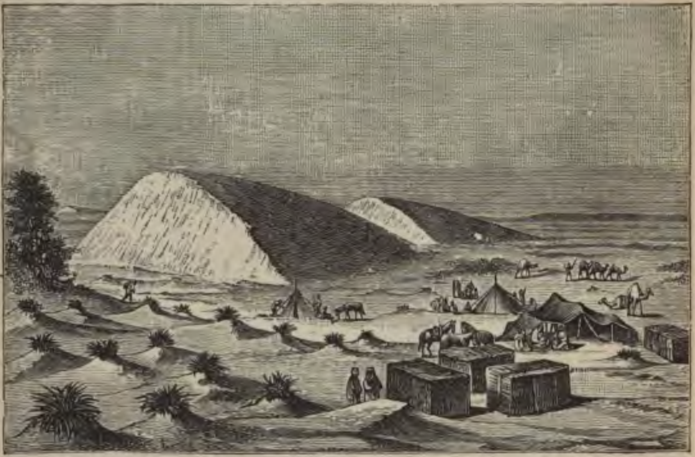


FIG. 7.—SAND-DUNES, DESERT OF SAHARA.

Rivers.—The area from which the water of a river is collected is called its **basin**, and the boundary of a river-basin, except where it borders the sea, is likewise the boundary of adjoining basins, and thus forms a **water-parting**, or line from which the water flows in different directions on opposite sides. Frequently a water-parting is the crest of a chain of mountains, but in many other cases it is only a slight swelling in a valley (Kur, Rion),[1] and it is by no means an uncommon thing for rivers to have cut a channel right across mountain chains.[2]

---

[1] See p. 266.

[2] See pp. 259, 277, 323, &c.

A few instances are known in which **bifurcations**[1] take place where there is no proper water-parting, but part of the same channel of water flows in one direction, part in another. More frequently the same lake has outlets in different directions. Several examples of this occur in the Rocky Mountains, lakes sending waters on one side to the Pacific, on the other to the Atlantic, ocean.[2]

As an agent of change a river wears away the land at one part, and deposits material in another part. The course of a typical river is divided into three parts—an upper, a middle, and a lower course. In the upper part of its course the fall or slope of the bed is steepest, and hence the wearing or eroding action is most rapid and predominates over deposition, the energy of the action being due not only to the swiftness of the current, but still more, probably, to the gritty matter which it carries along with it. The upper part of a river thus tends to recede higher and higher up a valley; or, to use the phrase frequently employed, a river eats back its head. In the middle course of the river erosion and deposition are more equally balanced, the river eroding where its current is swiftest (on the concave or hollow side of winding banks,[3] &c.), and depositing where it is slowest (on the convex side of winding banks,[4] &c.). In the lower course of the river deposition predominates over erosion, and almost all the matter still retained by a river in suspension is deposited at the mouth, where the flow is checked by the sea or lake into which the river empties itself. Frequently from this cause there is formed at the mouth of a river a bar or submarine ridge which prevents the entrance of vessels drawing above a certain depth.

When the matter laid down at the mouth of a river rises above the surface it forms a delta. Usually a delta is traversed by several branches of the river, whence the name, which was first applied to the delta of the Nile, the outer branches of which, along with the seaboard, form a Δ (the Greek letter for D). Occasionally, however, the river remains undivided, and traverses a true delta or deposit of alluvial matter in a single stream.

---

[1] The most noted example is that of the Casiquiare, which belongs both to the basin of the Amazon and that of the Orinoco.

[2] The name Two Ocean Pass is given from this circumstance to a particular pass in the Yellowstone Region (lat. 44° N. 110° W.)

[3] The banks of a river are known as *right* and *left*, according as they are on the right or left hand of a person looking in the direction in which the river flows.

[4] The convex side thus tends to grow more and more outwards, the concave side to become more and more hollow, till at last the river may burst through the neck on the inner side of the convex protuberance. The Isle of Dogs, in the East End of London, is a good illustration of a deposit formed in this way, but the neck connecting it with the land is now protected by artificial embankments.

From the mode of their formation, deltas are frequently flooded, and as every flood tends to raise the river banks, while the bed of the river is also being constantly raised, it follows that the river branches in a delta almost always run along natural embankments above the level of the surrounding surface, until, perhaps, the side of an embankment is broken through and a new channel formed along another line.

Altogether, the course of a river is a scene of constant change. Only where a stream has worn for itself a deep gorge in hard rock does its channel become a permanent one, and in such places the changes are chiefly in the swiftness and depth of the current. Such gorges are specially characteristic in dry regions, where the river derives little assistance from rain, frost, and vegetation in widening its valley; and the most remarkable examples of the kind are the cañons of the Rocky Mountains in Western North America,[1] the rivers of which are fed chiefly by melting snow near the source, and have their own erosive action assisted by the rapid fall of the bed.

The action of a river is variously modified by the tributaries which it receives on both its banks. Each tributary, with the assistance of its feeders and trickling waters, tends to form a valley of its own, and when it joins the main stream it not only adds to its volume, but has other effects according to circumstances. It generally aids more or less in eating away the bank of the main stream opposite to the influx, and thus to shift the course of the latter in that direction. This effect is greatest when the tributary is impetuous, and its course at right angles to that of the main stream, as in the case of some of the tributaries of the Theiss in Hungary. But at the actual point of junction the course of a tributary hardly ever has such a direction, for, as its current is more or less checked at the confluence, alluvial matter is always laid down at the inner angle between the main stream and its feeder, so that a wedge of such deposits tends to grow longer and longer in that situation, pushing the mouth of the tributary along more or less in the direction of the course of the main stream. By the continuation of this process the tributary may ultimately get wedged off altogether, and finally enter the sea as an independent stream.

The navigation of a river, which has so great an effect on the distribution of population on its banks, depends not only on the depth of its water, but also on the rate of flow (that again on the volume of water and the directness of the course as well as on the fall or slope of the bed) and the freedom from waterfalls and shallow rapids; and the advantage of a river for navigation is often greatly reduced by the length of its windings.

---

[1] See p. 336, and illustration p. 324.

The Dissolving Action of Rain-water.—The action of water in wearing away the land drained by rivers is not confined to the surface. Rain-water sinks into the ground sometimes to an enormous depth, the depth depending on the thickness of porous rocks. In doing so it may become muddy from the washing away of solid particles, just as when it trickles down a hill slope, but it exercises a much more powerful action in many cases in another way. There are many substances which rain-water can dissolve,[1] as water dissolves salt or sugar, causing them to disappear wholly from sight. Various soluble salts are always present in the ground, and hence rivers always contain a certain proportion of salt, though seldom enough to impart a salt taste. Carbonate of lime, of which chalk, limestone, and marble are three different forms, and which, accordingly, is one of the most widely diffused substances in nature, is easily acted on by rain-water in this way; where such rocks abound, caves are apt to be formed by the continual action of rain-water filtering in through pores and fissures,[2] and further consequences ensue from this process. Sometimes the hollows in limestone rock and the openings into them are so enlarged that considerable streams may precipitate themselves into them and continue their course for a time underground. Underground rivers are consequently a frequent characteristic of limestone regions.[3] Generally these rivers re-emerge at some point on the surface of the land, but sometimes they find their outlet under the sea. Sometimes the overlying crust of the earth is left by the process of cave-making without support and falls in, so that basin-shaped hollows take the place of subterranean caves.[4] Very frequently floor and roof in a cave are connected by a magnificent array of picturesque or fantastic pillars, which are themselves the result of the process by which the caves are made. For the process of cave-making is a slow one. It is carried on by the water, drop by drop. Each drop dissolves a little of the limestone; but where the percolation of the water is very slow, each drop as it hangs on the roof of the cave partly evaporates, and the carbonate of lime that had been dissolved in the evaporated water is left as a thin crust on the roof. Subsequent drops enlarge and elongate this crust till what is called a stalactite[5] is formed. The same process goes on beneath on the floor of the cave where the drop falls, and so, in course of time, a column of carbonate of lime, to which the name of stalagmite is given, is built up from the floor, and the meeting of the two forms a pillar, which the continuation of the process thickens and models.

---

[1] This dissolving power rain-water owes chiefly to the fact that it always contains a certain proportion of carbonic acid derived from the atmosphere.

[2] See p. 206, *n*. 2.

[3] See p. 269 (middle of page), and compare p. 270 (under Jordan).

[4] See p. 217.

[5] From the Greek *stalaktos*, 'dropping' or 'trickling.'

The Dissolving Action of Rain-water.—The action of water in wearing away the land drained by rivers is not confined to the surface. Rain-water sinks into the ground sometimes to an enormous depth, the depth depending on the thickness of porous rocks. In doing so it may become muddy from the washing away of solid particles, just as when it trickles down a hill slope, but it exercises a much more powerful action in many cases in another way. There are many substances which rain-water can dissolve,[1] as water dissolves salt or sugar, causing them to disappear wholly from sight. Various soluble salts are always present in the ground, and hence rivers always contain a certain proportion of salt, though seldom enough to impart a salt taste. Carbonate of lime, of which chalk, limestone, and marble are three different forms, and which, accordingly, is one of the most widely diffused substances in nature, is easily acted on by rain-water in this way; where such rocks abound, caves are apt to be formed by the continual action of rain-water filtering in through pores and fissures,[2] and further consequences ensue from this process. Sometimes the hollows in limestone rock and the openings into them are so enlarged that considerable streams may precipitate themselves into them and continue their course for a time underground. Underground rivers are consequently a frequent characteristic of limestone regions.[3] Generally these rivers re-emerge at some point on the surface of the land, but sometimes
hey find their outlet under the sea. Sometimes the overlying crust
the earth is left by the process of cave-making without support and
ls in, so that basin-shaped hollows take the place of subterranean
Very frequently floor and roof in a cave are connected by a
t array of picturesque or fantastic pillars, which are them-
esult of the process by which the caves are made. For the
ve-making is a slow one. It is carried on by the water,
. Each drop dissolves a little of the limestone; but where
on of the water is very slow, each drop as it hangs on the
ve partly [illegible] and the carbonate of lime that had
ed in the [illegible] ater is left as a thin crust on the
quent dr [illegible] d elongate this crust till what is
lactite[5] i [illegible] same process goes on beneath on
the cav [illegible] p falls, and so, in course of time,
f carbon [illegible] which the name of stalagmite is
lt up fr [illegible] the meeting of the two forms a
h the co [illegible] rocess thickens and models.

---

olving p [illegible] s chiefly to the fact that it always
ain [illegible] derived from the atmosphere.
[illegible] middle of page), and compare p. 271
[illegible] "dropping" or "trickling."

Springs.—Even where the rocks are less easily acted on than limestone and its allies, the action of underground water is important. It is to this water that springs owe their origin. Deep as water may sink in certain kinds of rock, whether porous or traversed by numerous inter-ramifying fissures, it is stopped by other kinds which are practically impermeable to water. So stopped, it creeps along the junction between the permeable and impermeable rock till it finds an issue on the surface of the ground in the form of a spring, which drains so much of the porous rock as lies above its own level (Fig. 8). Such being their origin, springs always contain some substances in solution derived from the rocks through which the water that feeds them has percolated. Hence many are known as mineral springs, and among these not a few have a repute on account of their medicinal action. Where the water comes from a great depth below the surface it is always warm,[1] and, as warm water is capable of dissolving many substances which cold water (even rain-water) cannot dissolve, hot springs are always richer in dissolved minerals, and more frequently than cold ones have a medicinal reputation. One widely diffused substance, silica,[2] is as readily dissolved by very hot underground water as carbonate of lime is by cold, and hence deposits of silica (known as **siliceous sinter**) are very often found round the mouths of hot springs.

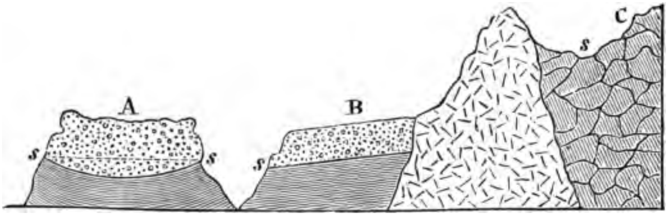


FIG. 8.—A, B, porous rocks ; C, a rock with inter-ramifying fissures ; *s*, *s*, springs.

In many parts of the world springs can be made artificially by deep borings. These are called **Artesian Wells** from having first been made in Europe[3] in the French province of Artois. A peculiar form and structure of ground are required to render the sinking of such wells possible. (1) The ground must be hollow, so that the mouth of the well is lower than the surface where the water destined to feed it is collected. (2) A bed of porous rock must form a similar hollow beneath the surface, emerging at the surface only at certain places where the rain-water can soak into it. (3) Above and below this porous bed must be beds of impermeable rock, the lower bed to keep the water from sinking still deeper and so escaping, the upper to prevent it from oozing to the surface at all parts and so forming a marsh. When these conditions are fulfilled a boring in the hollow down to the porous bed will enable the water to well forth at the top (Fig. 9). Such borings are often of great importance in arid countries.[1]

---

[1] See p. 36.

[2] A substance of which quartz and sand are different forms.

[3] Long previously elsewhere.

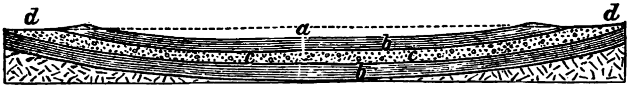


FIG. 9.—*a*, artesian well; *b*, *b*, impermeable strata; *c*, *c*, porous stratum; *d*, *d*, collecting surfaces.

Lakes.—The action of running water is frequently modified by the presence of lakes. Lakes may occur either at the head of a river, when they are fed by a number of small streams, none of which can be identified with that which forms its outlet, by springs, or by rains and trickling water; or they may occur in the course of a river (forming expansions in its bed); or they may be the final recipients of the water of one or more rivers having themselves no outlet; or they may stand quite isolated, fed by rains and springs and kept within limits by evaporation. The last two classes of lakes are nearly always salt, from the gradual accumulation of the salt conveyed by the rivers or other waters that feed them. Lakes with underground outlets (Zirknitz [2]) are only apparent exceptions.[3]

All lakes, whether fresh or salt, tend to be filled up and disappear in course of ages. Where they are, as it were, expansions in the bed of a river, their obliteration goes on rapidly by a double process. At the upper end of the lake the river deposits almost all its sediment in the still water which checks its flow on its entry;[4] at the lower end it constantly saws its outlet deeper, and thus keeps reducing the level of the entire lake. So long, however, as lakes exist, they have an important effect on the lower course of the stream, an effect which often has a great influence on the habitability of the country on its banks. They serve to regulate the volume of the river below, gradually rising in level when floods swell the upper reaches, and thus making the flow of the lower parts of the river more constant, and protecting the neighbouring country from inundation.[5]

---

[1] See pp. 145, 311.

[2] See p. 217 *n*. 2.

[3] Lob Nor, in Eastern Turkestan, is a peculiar case Its waters are fresh, though there is no outlet, but it is described by Przhevalsky as in reality merely the expansion of a river, and as flowing on like a river till its waters evaporate, its salts then forming an incrustation on the surface of the ground.

[4] Lakes are thus filterers of rivers.

[5] The Aar, in Switzerland, has been diverted by an artificial channel into the Lake of Bienne, in order that the lake may serve for this purpose.

In the case of salt lakes the process of obliteration is a more gradual one. The sediment carried into them by the feeders slowly raises the level of the lake, causes it to have a smaller depth but a greater extent of surface. The extension of the surface is, however, retarded by the fact that evaporation is accelerated when the area of the surface is enlarged. But it is only a retardation. The level of the lake tends to rise, the surface to spread, until in the end one of two results is bound to happen. Either the level is so much raised that an outlet is formed to the sea, or the surface becomes so extended that the lake dries up from the rapidity of evaporation. Hence there are large areas of the earth which are constantly dry at least in summer, but have the surface strongly impregnated with salt.[1]

From this account the conclusion may be drawn that all lakes must be regarded as recent formations in the history of the earth, and the hollows which they fill are due to various changes in the crust.

General Result of the Action of Water.—Since, then, it is the destiny of lakes to be filled up and disappear, and of matter at higher levels to be carried down to lower levels, it follows that the ultimate tendency of running water is to carry all the higher land of the earth into the sea. But in doing so it acts unequally—here eating away the land with great energy, there enfeebled or even temporarily checked in its action; and hence the general effect of the process is in the first instance to exaggerate the inequalities on the surface of the earth instead of removing them. Table-lands are thus sculptured into mountains and valleys, and mountain chains and peaks are rendered more and more rugged and precipitous. Many of the mountains of the world are due as such to no other cause.

Marine Deposits.—The sea, being the ultimate receptacle of the matters worn away from the land, sorts them out according to their weight and fineness, and by means of its waves, tides, and currents, spreads them out in vast flat sheets, layers, or strata. The heavier matters sink to the bottom first and form sands, which ultimately get consolidated into sandstones. The finer matters are carried farther out, but sink in the end likewise, forming a muddy bottom which ultimately gets hardened into fine-grained rocks like shale, mudstone, or slate.[2] The soluble substances are carried out farthest of all, and amongst them the carbonate of lime is transported in great quantity into deep waters, there to

Suffer a sea change
Into something rich and strange.

---

[1] Changes in climate and physical features may modify these processes.

[2] All these rocks may be described as hardened mud; but while mudstones are compact and homogeneous, shales easily split into thin layers parallel to the plane of stratification, and slates can be split into leaves more or less inclined to that plane.

Myriads of living creatures take hold of it, and 'by some strange alchemy' build it up into an infinite variety of beautiful skeletons, which during the life of the animals serve as their means of support and protection, and after their death sink to the bottom and form the material out of which new limestones arise similar to those from which the substance was originally derived.[1]

The insoluble substances derived from the land are never carried far out to sea. Even the largest rivers and strongest currents never transport them farther than 200 or 300 miles from the shore. If the sea-bed keeps stable the shore-line is gradually extended seawards, where deposits are abundant, as at the mouths of rivers and on coasts where currents are arrested. But if the sea-bed happen to be sinking the deposits grow thicker and thicker in the same place, and changes in depth or in the currents may lead to deposits of one kind being laid down immediately above those of another kind. Thus are built up whole series of strata, limestones, sandstones, shales, &c., and from the strata so formed the land is renewed.

Emergence of Marine Deposits.—The changes of level already referred to raise sea-formed strata in many cases high into the air. This has taken place at different times in the world's history, and the strata themselves often furnish an indication of the period when this has taken place, or, if not that, at least of the relative order in which they have themselves been formed. They do so by means of the fossils which they enclose. Fossils are remains of living things, whether animals or plants (generally animals), which have been preserved in a recognisable form from the time when they got imbedded in the rocks as these were forming; and an examination of these remains collected in regions where we can tell the order in which strata have been laid down from the order in which they still lie one above the other, has brought to light the fact that in the course of ages there has been a gradual change in the character of the living things on the globe, and hence in the fossils. By the character of the fossils geologists are thus able to tell the relative age of the rocks in which they are found, and hence we may speak of rocks being in a geological sense older and newer.[1]

---

[1] Of the animals which acquire skeletons of carbonate of lime the most important geographically are minute creatures called *coral polyps*, the skeletons of which have formed reefs and barriers in the neighbourhood of coasts in warm seas, and an almost innumerable crowd of small islands in mid-ocean. When wholly composed of coral remains these islands are generally ring-shaped, and are then known as *atolls*. They are necessarily always flat and low, the animals being unable to live out of water. The part of the island above the surface is due to the arrest of drifting matter, by the coral beneath the surface, the heaping of broken fragments of coral on the top of the reefs by the waves, and the subsequent accumulation of vegetable remains—the plant-life itself being either brought originally with drifted material, or derived from seeds dropped by birds. See p. 319, with cut.

Folding of Strata.—Though originally, as a rule, spread out level at the sea-bottom, the strata are scarcely ever found to be level, or nearly level, when raised to form dry land. They are folded and crumpled as layers of cloth might be when squeezed from side to side while at the same time under pressure from above. There can be no doubt that the rocks forming the crust of the earth have been subjected to a similar squeezing, a squeezing of such tremendous force as to bend immense thicknesses of the hardest rocks into greater or smaller wrinkles, sometimes forming gentle undulations, sometimes close-set folds.[2]

Mountain-building.—Along certain lines the crust of the earth seems to have been peculiarly weak, so as to be less able than other parts to resist the enormous upward pressure resulting from this lateral squeezing. In such situations great masses of matter have been forced high into the air, forming mountain chains like the Alps, Himalayas, and Andes. The formation of deep seas like the Mediterranean seems to have been part of the same process, a great hollow corresponding to a great swelling. The greatness of the force exercised during this process is evidenced by the abruptness of the folds of the strata, which often in mountainous regions stand upright, and sometimes are tilted over so that older rocks come to lie above newer.

But, tremendous as the forces are which give rise to upheavals of this kind, the process is generally an extremely slow one, a striking proof of which is furnished by the fact already mentioned,[3] that rivers often cut right across mountain chains, for there is often the clearest evidence to show that the rivers were there before the mountains, and have deepened their beds as the mountains rose, forming themselves the gorges by which the chains are broken.

Earthquakes.—There is strong reason to believe that earthquakes also are, in many cases, among the consequences of the enormous lateral pressure which crumples the strata of the earth's crust and builds up mountain chains. We can imagine that the snapping of a part of the crust deep below the surface in consequence of the intense strain which that pressure causes is the origin of the shock which sometimes destroys whole cities along with thousands of human beings.

Many earthquakes are, however, due to volcanic outbursts, and still more, in all probability, to subterranean movements of the same nature as those which lead to such outbursts. The localities in which earthquakes most frequently occur are such as might be expected in accordance with these two surmises as to their cause; for these are, in the first place, regions where active volcanoes are most abundant (see next paragraphs); and, secondly, mountainous countries, and above all the neighbourhood of mountain chains. Besides the shores of the Pacific Ocean and the islands of the Eastern Archipelago, the parts of the world most frequently visited by earthquakes are the Mediterranean Peninsulas (including Asia Minor), the Caucasus, Elburz, Himalayas, Tian-Shan, and Appalachian Mountains and the districts in their vicinity.

---

[1] Vegetable remains, found chiefly among a particular series of older rocks, forming the Carboniferous system, have given rise through chemical and other changes to *coal.*

[2] See Fig. 24, p. 200.

[3] See p. 26.

Minor shocks may be due to various other causes, and careful observations with instruments in different parts of the world have made it likely that the whole surface of the earth is in a constant state of tremor.

Volcanoes.—All mountains are not due to the processes already described, nor are all parts of the earth's crust composed of rocks originally laid down in water. Volcanoes are built up of material ejected from beneath the surface of the earth, and their generally conical form is due to the mode in which that matter has been deposited round the opening from which it is ejected (the **crater**).[1] The matter thrown out is sometimes molten (**lava**), and pours forth in a glowing stream, which may flow to a distance of scores of miles. Sometimes the molten matter is sent forth with such violence as to be torn into spray, which solidifies in the air into dust, mingled with larger and smaller rounded[2] stones (**bombs** and **lapilli**). Sometimes the matter ejected is solid, even when blown from the crater, but there is always gas along with the vapour of water present, and occasionally there is nothing else. In former geological ages wide sheets of molten lava appear to have issued in certain places from cracks in the earth's crust, and to have covered extensive plains. Solidified matter (previously molten) filling a fissure in the crust is known as a **dyke**.

Many volcanoes are **extinct**, and have not undergone eruption in historical times, and some such volcanoes are remarkable for still preserving their characteristic form with well-marked craters (Auvergne, Eifel). Others are **dormant**, not having undergone eruption since a remote period. Others are said to be **active**, being still subject to eruption from time to time.[3] Almost all active volcanoes are situated near the sea, and this fact would appear to have a great deal to do with the occurrence of volcanic outbursts. It is believed that such outbursts may be due in some, if not in all cases, to the sudden conversion into steam of water that has filtered through porous rocks to heated matter deep down in the crust of the earth.

---

[1] Greek, 'a cup.' Usually there are many secondary craters in a volcano in addition to the principal one.

[2] The rounded form due to whirling in the air.

[3] The number of active volcanoes distributed over the globe is upwards of 300, but it is impossible to state the precise number, since it cannot always be determined whether a volcano is to be considered active or dormant, or even extinct. Those which are undoubtedly active are mainly scattered round the Pacific, on the west coast of America (with a wide gap in temperate North America) in the

Underground Heat.—In any case the existence of volcanoes is a proof of the presence of heated matter below the earth's surface. But it is not the only proof. Everywhere it is found that when we descend below a certain depth[1] at which the temperature is constant all the year round, the temperature increases the deeper we go. The rate varies at different places and even for the same place, at different depths, but on an average is estimated at about 1° Fahr. for every forty-five feet of descent. Hot springs are one of the effects of this internal heat of the earth. **Geysers**, or hot springs liable to periodic eruptions, during which water is sometimes shot hundreds of feet into the air, occur in Iceland, Western North America, and New Zealand. Their eruptions are probably due to the gradual increase of heat at the bottom of a

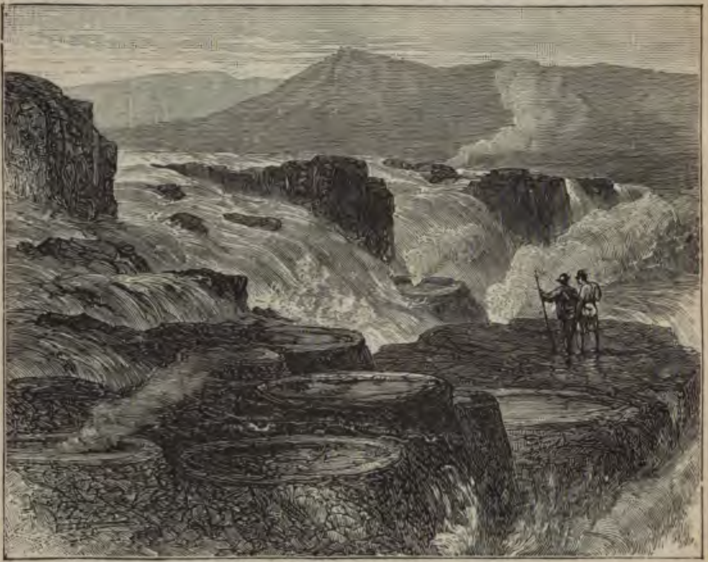


FIG. 10.—BOILING SPRINGS, UNITED STATES.

north-east of Asia, and on the islands in the east and south-east of Asia. Many islands in mid-ocean are entirely volcanic in their origin, and many volcanoes are submarine.

[1] Varying in different places according to climate.

deep column of water till the temperature exceeds the boiling-point at the pressure exerted by the column.[1]

Effect of Surface Inequalities on the Habitability of the Earth.— Mountains and plateaux act in some respects favourably, in others unfavourably, in the development of population.

(1) Long mountain chains interrupt communication between the people on different sides more or less, and the interruption is the more serious the denser the populations that are thus separated. From this point of view the height, slope, and number of passes across mountains are of much more importance than the height and number of the peaks. (2) Mountain slopes are difficult of cultivation, and more difficult in proportion to the steepness. Cattle-rearing is almost the only agricultural industry that can be carried on high up on mountain sides. (3) On the other hand, in regions that require irrigation the lower slopes of hills and mountains present one peculiar advantage for agriculture, inasmuch as they can be cut out into level terraces, to which the fertilising water can be led down from stage to stage. In warm countries this is a very common mode of cultivation. (4) Mountains and plateaux have various important effects on climate, which will afterwards be explained.[2] (5) Mountains and highlands generally, in virtue of the

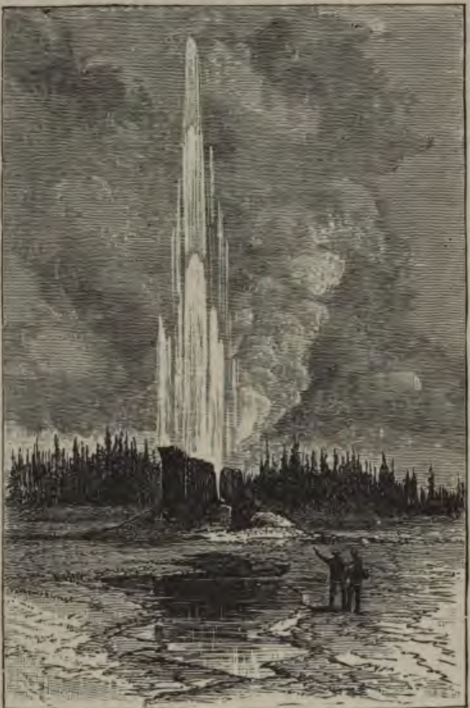


FIG. 11.—THE GIANT GEYSER, UNITED STATES.

---

[1] The boiling-point is higher the greater the pressure.

[2] See pp. 52, 234, &c.

processes already described, are the sources of soil for the plains lying at their feet; hence the fertility of the valleys of the Po, Ganges, and many others. (6) Through the contortions to which mountains owe their rise a great variety of strata, old and new, are brought to the surface, and with these a great variety of minerals,[1] the working of which employs a large population.

The Atmosphere.

The atmosphere is a mixture of gases[2] forming an envelope round the globe. Its height above the surface cannot be definitely stated, for the gases of which it is composed gradually become rarer and rarer the greater the elevation. The greater density of the lower strata is a consequence of the attraction of the earth, which gives weight to every substance on the earth's surface, though in the case of the atmosphere this weight cannot be felt by us, because it presses equally on all sides. The pressure on one side of the hand exactly balances that on the other side. The weight or pressure can, however, be made observable in various ways. The commonest way is by means of a tube closed at one end, exhausted of air and inverted over a basin of mercury. The mercury then ascends the tube, in consequence of the pressure of the atmosphere outside, unbalanced by any corresponding pressure inside. It rises till the weight of the column of mercury is exactly equal to the weight or pressure of a column of air of the same diameter. A tube like this, with a scale marked on it to show the height to which the mercury rises, is called a barometer. The average height at sea-level is nearly thirty inches.

The differences in the height to which the mercury rises in a barometer at different levels above the surface of the earth are sometimes taken advantage of to measure the elevation of mountains and plateaux; but such measurements are not very trustworthy because the height of the barometer, or in other words, the pressure of the atmosphere, varies at different times at the same place, as it varies at different places at the same level.

Winds.—Of the latter differences, which are of the highest importance in geography as giving rise to winds, the great cause is the heat of the sun. Heat expands or rarefies the air, and hence causes the pressure to be less, while cold condenses the air and increases the pressure. But as water always tends to assume the same level, air always tends to acquire the same pressure at the same level. This it does by flowing from the place where the pressure is high to where it is low, and hence from where it is condensed to where it is rarefied. The most familiar illustration of this is presented by land and sea breezes.

---

[1] See p. 334.

[2] The principal being nitrogen and oxygen.

These are due to the fact that the land is more rapidly heated by day, more quickly cooled by night, than the sea.[1] Hence by day it is warmer on land than at sea, and, if the weather is otherwise calm, a sea-breeze blows on the coast by day. For the opposite reason, a land breeze blows at night.

Under the same law there blow over a great part of the ocean constant winds which, directly and indirectly, are of the highest importance for the climate of the whole earth. These are called the **trade-winds**, which are winds blowing more or less from the north and south towards a belt near the equator, where the amount of heat and consequent rarefaction is greatest, and where calms and variable winds prevail. The position of the dividing belt between these two winds varies from

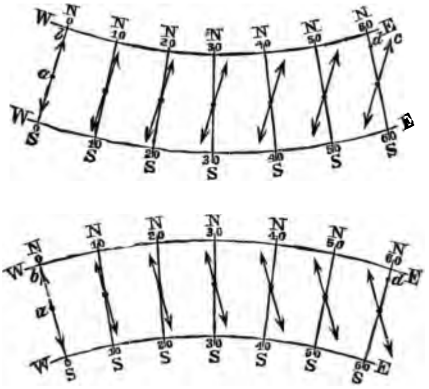


FIG. 12

season to season through about 8° in the Atlantic, 5° in the Pacific Ocean, being farther north when the sun is high north of the equator, farther south when it is high south of the equator. In the Atlantic and Pacific Oceans they blow on each side of the dividing belt over a breadth varying from 20° to 25°. In the Indian Ocean only the south trade-wind prevails.

If the direction of these winds depended solely on the difference of temperature in tropical and extra-tropical seas it would be exactly north to south in the northern hemisphere, south to north in the southern, but there are three causes which alter, or seem to alter, their direction. Two of these are direct consequences of the rotation of the earth.

The first and most important of these effects is illustrated by

---

[1] See p. 43, under *Temperature*.

Fig. 12, in which the arrows represent the vibrations of a pendulum continued uniformly in the same direction while the earth is turning on its axis, the upper part of the figure showing how the motion of the pendulum, which began as a due north and south vibration in long. 0° comes to cross the direction of the meridian in the northern hemisphere, as the rotation of the earth brings the position at which the motion commenced into those positions which were then occupied by the meridians 10°, 20°, &c.; the lower part of the figure shows similar effects in the southern hemisphere. By causing a pendulum to vibrate in this manner a French physicist named Foucault made the effect of the rotation of the earth visible. So also if the direction of motion of a current of air at starting in lat. 30° S. is due north, then in long. 0° (Fig. 12, lower part of fig.) it is represented by the arrow pointing northwards upon that meridian; but if, while keeping the same direction, the current of air reaches lat. 10° S., when the earth has rotated from 0° to 60°, the original direction will be represented by the arrow pointing to *c*; the point moving from *a* to *b* will arrive at *c* instead of *d*; the wind will have become more or less south-east. Thus all winds of the northern hemisphere tend to appear as if deflected to the right, those on the southern hemisphere for similar reasons to the left. Secondly, the movement of rotation along parallel 30° is slower than along parallel 10°; hence the air coming from 30° tends to lag behind at 10°, and so become more easterly. Thirdly, in the case of the Atlantic trade-winds, the greater rarefaction on the land tends to suck in the air from the opposite region of the ocean, and this increases still further the easterly element of the direction of the trade-winds in the neighbourhood of South America.

The winds which constantly pour in from the outer margin of the trade-wind belts must necessarily be balanced by others flowing outwards. Near the dividing belt this outward flow, constituting the **anti-trades**, takes place at an elevation too great for us to have any direct evidence of it, but the signs of it become more and more frequent the farther we advance towards the outer margin of the trade-winds. Within twelve or fifteen degrees of the equator occasional evidence of it is furnished by volcanic dust being projected up to the height at which this outward wind is blowing, and hence falling to the east instead of the west of the volcano. Nearer the margin high clouds can sometimes be seen moving eastwards; and on mountains, such as Teneriffe, in lat. 28° N., there is a constant south-west wind, which blows, however, only at the top in the height of summer, descending lower and lower as the winter advances and the margin of the trade-wind belt recedes to the south.

This shows that the anti-trades sink in elevation as they recede from the place of their origin. The air which they carry cannot all advance farther and farther polewards, for it is obvious that, as the intervals between the degrees of longitude grow narrower in that direction, there cannot be room round the poles for the air that starts from the equatorial belt. A struggle hence takes place among the particles of air, and this leads to a condensation of the air about the margin of the trade-wind zone, where the barometer generally indicates a higher pressure than almost anywhere else on the globe. Thence accordingly the wind flows at the surface of the earth equator-wards and polewards, with the normal apparent deflection. Hence south-west winds (anti-trades) prevail throughout the year on the west coasts of Europe and the corresponding coasts of North America; but in the northern hemisphere, owing to the frequent interchange of sea and land, the winds of the temperate zone are extremely variable. In the southern hemisphere, on the other hand, there is little land beyond 40° S., and hence the anti-trades blow there with more constancy, and are known to seamen, from the latitudes in which they prevail, as 'the Roaring Forties.'

A certain constancy can be observed even in the variable winds of the northern hemisphere. Normally they either blow from all sides inwards to a centre of low air pressure, or outwards on all sides from a centre of high pressure, In the former case they form what is called a **cyclone**,[1] because the isobars or lines connecting the places having an equal pressure outside the centre of such a wind-system are circular or nearly circular in shape. In the latter case they constitute a wind-system known as an **anti-cyclone**. The direction in which winds blow spirally[2] inwards in a cyclone is (in the northern hemisphere) opposite to that of the movements of the hands of a watch lying face upwards, in an anti-cyclone the opposite. The position of an anti-cyclone is usually pretty constant for days, or even weeks together, but that of a cyclone is constantly changing, as the centre of low pressure is always shifting, generally in a more or less easterly direction. Cyclones vary greatly in dimensions, but most commonly they are between 1000 and 2000 miles in diameter, so that one that extended only from the Shetland Islands to the middle of France would be a small one. In low latitudes cyclones are much rarer than nearer the poles, but when they do occur are generally smaller in size and more violent in character. They constitute in fact the revolving storms known in different regions as **hurricanes** and **typhoons**, as well as cyclones. In the seas where they occur these are most prevalent at certain seasons of the year. The hurricanes of the West Indies and the North

---

[1] From Gr. *kyklos*, a circle.

[2] Not directly, because they are deflected as explained on p. 40.

American coast, and the typhoons of the China Sea and the coasts of Japan, occur chiefly from July to October, and above all in August and September; the cyclones of the Malabar coast and the Bay of Bengal, chiefly in April and May, October and November; those of the South Indian Ocean, and in the South Pacific Ocean between the Australian coast and the Low Archipelago, chiefly from December to March or April. In both hemispheres accordingly they take place mostly in the summer months, except in the Indian seas, where they are most prevalent about the change of the monsoons (see next paragraph). In the southern hemisphere the direction of rotation in a cyclonic storm is opposite to that experienced in the northern hemisphere.

In many parts of the world, sea and land breezes take place on a large scale, alternating not by day and night, but from season to season. The region in which such alternating winds prevail most extensively and in the most marked degree is South-Eastern Asia, including the Eastern Archipelago and the northern part of Australia, throughout which the winds are known as **monsoons**, from the Arabic word for seasons. The contrast between the different seasons is most marked in the area to the south of about lat. 25° N. (India, Indo-China, and Southern China, as well as Northern Australia and the Islands), where sea breezes (south-westerly, southerly, south-easterly) blow more or less steadily for half the year, while the sun is in the northern hemisphere, and the rarefaction greatest over the land, and land breezes during the rest of the year. Even as high as lat. 60° N. the seasonal changes are indicated by the predominance of sea and land breezes, in summer and winter respectively. South of the equator the monsoon winds are governed chiefly by the rarefaction and condensation in the interior of Australia. Hence the sea breeze (in the Eastern Archipelago and the greater part of Northern Australia a north-west wind, in the north-east of Australia a north-east wind) occurs while the sun stands high in the southern hemisphere.

Seasonal winds of the same nature, though less constant, are observed in other parts of the world, as to the north-east of the Gulf of Mexico and of the Black Sea.[1]

The Ocean.

The ocean is a vast body of salt water, the volume of which relatively to the land surface of the earth has already been indicated. The saltness varies from thirty-three to thirty-eight parts in a thousand, being greatest in the trade-wind area and in inland seas like the Mediterranean and the Red Sea, where evaporation is rapid and the influx of fresh water slight. In other inland seas, where opposite conditions prevail, the saltness is much less than that of the ocean. In some parts of the Baltic it is only about seven parts in a thousand.

---

[1] See pp. 266, 335.

Temperature.—The temperature of the ocean generally, as compared with that of the land, is remarkable for its uniformity. At the surface the mean daily range, or difference between the highest and lowest temperature within a single day of twenty-four hours, is not more than 1° F. in deep seas, 4° F. in shallow waters. The annual range exhibits a corresponding equability, although, of course, the extremes in this case are wider apart. There are two causes of this very important geographical fact. (1) Water requires a greater amount of heat to raise its temperature one degree than any other substance, a much greater amount than is required by the solid substances composing the land surface of the earth. (2) The movements which go on unceasingly in the waters of the ocean, and of which some account will be given presently, have the effect of distributing and equalising the temperature. Another consequence of the slowness with which water is heated (and the like slowness with which it is cooled) is that the hottest and coldest months for the ocean (August and February) occur a month later than the corresponding months of the land surface of the earth, except in those maritime places where the temperature is governed in a marked degree by marine influences.

Movements of the Ocean: Waves.—The movements of the ocean are all of great importance with relation to the inhabitants of the earth. The most obvious of these consists in wind waves—sometimes only a gentle rocking and lapping, at other times terrible in their violence. Great difficulty exists in measuring the height of waves. The highest storm waves are said to measure forty-four to forty-eight feet in height, the average storm wave about thirty feet. The distance from crest to crest in the case of great waves is said to vary from 500 feet to half a mile in extreme cases. With regard to the force of the waves, it is recorded that at the Skerryvore Lighthouse, off the west coast of Scotland, a mass of rock five and a half tons in weight has been hurled by a wave to a height of seventy-two feet above the surface of the sea, and a mass thirteen and a half tons in weight dislodged from a cliff at a height of seventy-four feet. Such instances convey a good idea of the power of the waves in wearing away an exposed coast.

Tides.—The tides, which consist in a gradual rise and fall in the level of the ocean completed twice in about twenty-five hours, are practically important in relation to navigation, and more particularly in relation to the navigation of narrow seas and river mouths. In narrow channels the tides are not merely a rise and fall of the level, but also a backward and forward flow or current, and as such assist in propelling craft now up and now down a river; and, moreover, have in some cases an important effect in preventing the formation of river bars, since they scour the lower part of the river bed and wash the sediment far out to sea, or cause it to be deposited chiefly on the river banks and not in mid-channel. But as a rise and fall also the tides are of great consequence in relation to shipping, as enabling vessels of large burden to ascend the estuaries[1] of rivers to a considerable distance, so as to facilitate the growth of great seaports in perfectly sheltered positions easily accessible on the land side as well as by sea. Great Britain and the shores of the North Sea are peculiarly favoured in respect of tidal influences, the tide rising in these waters to an exceptional height, as will be understood when the rise and fall of the tide is explained.

The tides are due to the attraction of the sun and moon on the earth, but chiefly that of the moon. If it were the whole amount of attraction exercised by the sun or moon on the earth that gave rise to the tides, then the influence of the former would be by far the greater; but it is not the whole amount of the attraction in either case that has the effect in question, but the difference between the attraction of either upon the solid (or at least rigid) globe and that exercised on the movable body of waters on its surface. The waters swell up in a great wave on the side nearest the moon, because they are pulled more strongly towards the moon than the solid globe is. Those on the opposite side get heaped up likewise, because the solid globe is, as it were, pulled away from them. Two great waves are thus caused simultaneously by the action of the moon, and the course of the tides (the period and height of their rise and fall) depends chiefly on the phases of the moon. The influence of the sun is principally manifested in increasing the height of the tidal waves at new moon (when the sun and moon are on the same side of the earth and reinforce each other by pulling in the same direction), and at full moon (when they are on opposite sides and reinforce each other in another way, the sun's near wave being increased by the moon's distant one, the sun's distant wave by the near wave of the moon). The tides with an exceptionally great rise and fall, which occur every fortnight at new and full moon, are known as **Spring Tides**, those with a very small rise and fall, which occur at half moon (thus also fortnightly), are called **Neap Tides**.

In mid-ocean the height of the great tidal wave is much less than on the coast, and especially where the sea becomes gradually shallower as the coast is approached. In mid-Pacific it is only about three feet, in mid-Atlantic about twelve feet. The effect of a shallowing coast is to retard the progress of the wave, so that the advancing waters overtake those in front and cause them to be heaped up. The shallow bank on which the British Isles lie[1] thus serves to increase the height of the Atlantic wave, and this effect is enhanced in certain funnel-shaped estuaries or gulfs, where the wave is more and more retarded as it advances.[2] In the Bristol Channel, which has the highest tides in the British Isles, or indeed in Europe, there is sometimes a difference of more than forty feet between high and low water at spring tides; in Cumberland Basin, at the head of Fundy Bay, between New Brunswick and Nova Scotia (where are the highest tides in the world), the extreme difference is as much as seventy feet. In the case of the Bristol Channel the effect is partly due to the fact that two tidal waves unite to advance up the Channel at once. The wave from the Atlantic breaks into branches on the south coast of the British Isles. One branch passes round the North of Ireland, and at the mouth of the Bristol Channel meets and combines with a second branch belonging to the next tidal wave, about twelve and a half hours later.

---

[1] The term *estuary*, from Lat. *aestus*, the tide, is properly applied to the wide mouths of rivers exposed to tidal action.

Inland seas like the Mediterranean or the Baltic have scarcely any tide. Their narrow mouths prevent them from sharing in the tides of the ocean, and the volume of water in them is too small for them to have considerable tides of their own. There are few points in the Mediterranean where the tides reach three feet in height, few in the Baltic with tides of even one foot. The smallest body of water in the world in which tides have been ascertained to exist is Lake Michigan, where the highest rise at Chicago even in spring tides is only about three inches.

Currents.—With reference to the habitability of the earth, by far the most important movements of the ocean are its currents, chiefly owing to their effect on climate. The currents principally concerned in these effects are surface currents; but a consideration of these requires us to pay attention to another great movement of the waters of the ocean. The movement referred to is the gradual in-creeping of a vast body of cold water from the polar regions towards the equator, a movement whose existence, long surmised on the ground of observations of deep-sea temperature, has been clearly proved by the numerous additional observations that have been taken in recent years. These observations have shown (1) that all the deeper parts of the ocean in free communication with the surrounding waters (from about 1,600 fathoms downwards) are occupied by a layer of ice-cold or nearly ice-cold water (31½°-35° Fahr.); (2) that inland seas (like the Mediterranean) and isolated depression basins cut off from the surrounding waters by a submarine ridge have bottom temperatures either corresponding to the mean winter surface temperature of the place, or the same temperature as that of the water at the level of the ridge; (3) that submarine banks or islands cause the cold waters to rise nearer the surface (they being, as it were, forced up by the obstruction); and (4) that the colder waters rise nearer the surface about the equator than they do even at a distance of from 30° to 35° on either side.

---

[1] See p. 160.

[2] It must be carefully noted that the advance of the tidal wave is different from the upward flow in a tidal river. The advance of the wave is indicated by the period of high water—that is, the time at which the crest of the tidal wave reaches a particular place; but the river continues to flow upwards for a considerable time after high water, as it continues to flow downwards for some time after low water.

All these facts are explicable only on the supposition above stated, and we may hence assume that there is a slow but steady inflow of cold water from the polar regions to the neighbourhood of the equator, where the meeting streams rise towards the surface. The surface currents, on the other hand, mainly result in a transference of water from the equatorial regions towards the poles.

In the case of the chief surface currents there is little doubt that the prime movers are the winds; and hence in the domain of the most constant winds of the globe—the trade-winds—there are in both the great oceans two westerly[1] surface currents known as the **North and South Equatorial Currents**, in the Indian Ocean only the latter of the two. By means of these currents the waters are driven up against the eastern shores of the opposite continents or the islands lying off them, and are hence compelled to take another direction. Part of the water consequently returns eastwards, forming what is known as the Equatorial Counter-current, which in the two great oceans is between the north and south equatorial currents, in the Indian to the north of the only direct trade-wind current. Part of the water passes, however, obliquely to the north and south along the eastern shores of the continent. Now here we may note an important consequence of the disposition of land and water. In the Atlantic the eastern shoulder of South America lies to the south of the equator and under the influence of the south equatorial current, so that a considerable portion of its waters is deflected northwards along with other waters derived from the north current, and, owing to the contraction of the Atlantic towards the north, the benefit of this gain of warm water is confined within a limited area, within which it is all the more appreciable. The benefit, too, is almost confined to the eastern shores of the North Atlantic basin, which are consequently more favoured than any other part of the world in the same latitude.

---

[1] Currents are named (unlike winds) from the direction in which they flow.

To understand this we must trace the subsequent course of these equatorial waters. A large body of these waters enters the Gulf of Mexico, and being there deflected to the north-east, mingled with other water, quits the gulf at the strait between Cuba and Florida as a swift,[1] narrow,[2] warm,[3] current of deep blue[4] water, called the **Gulf Stream**, which thence proceeds north-eastwards, shallowing, spreading out, and finally breaking up into branches (a marine delta) as it advances. As a distinct current it comes to an end between long. 30° and 40° W., but a great deal of its waters is swept north-eastwards to the shores of Europe and Iceland (**Gulf Stream Drift**) under the influence of the prevailing south-westerly winds; a portion, however, returning southwards along the coast of Portugal and North-West Africa.[5]

The south-west branch from the south equatorial current of the Atlantic is much feebler, and there are no currents elsewhere which have anything like the same effect as the Gulf Stream in high latitudes. In the Pacific the current which answers to the Gulf Stream, known by the Japanese name of **Kuro Siwo**, or Dark[6] Stream, is the most important, but is colder than the Gulf Stream. In this ocean also the configuration of the continent is favourable to the transference of a considerable body of warm water by drift currents to the north-east shores of the basin (north-west coast of America), but the benefit derived therefrom is less than on the corresponding shores of Europe for the reasons already indicated. Like the Gulf Stream, the Kuro Siwo gives off a return branch that proceeds southwards, this branch bringing relatively colder water which skirts the coasts of California.

Though the principal surface currents are equatorial in their origin, **cold surface currents** are by no means wanting, and, as regards the action of these also, the northern hemisphere is greatly favoured as compared with the southern through the disposition of land and water. The only important surface current from the Arctic seas proceeds from Davis Strait along the east coast of North America. It is known as the **Labrador current**, and advances southwards between the Gulf Stream and the coast of the United States, where it is known as the **Cold Wall**, on account of the sharp distinction in temperature between its bright green waters and the blue waters of the Gulf Stream. The shallow Behring's Strait does not admit any cold current to the Pacific Ocean; but, on the other hand, no less than three cold surface currents take their origin in the Sea of Okhotsk, in the north-east of Asia—one skirting the west coast of Kamtchatka and passing southwards by the Kurile Islands, and one on each side of the island of Sakhalin.

---

[1] About four miles an hour.

[2] About thirty miles wide.

[3] Above 80° Fahr.

[4] The depth of colour due to the high degree of saltness, and that again to the great amount of evaporation from the warm water.

[5] Within the area round which the currents belonging to this system flow lies what is known as the *Sargasso Sea*, where the surface of the ocean is thickly strewn with a floating seaweed.

[6] That is, *dark blue*. See Note 4.

But in the more open seas of the south the cold currents are very important. Everywhere beyond 45° S. the waters of the Southern Ocean appear to be drifting north-eastwards, and on the western coast of all the great land-masses of the south (South America, Africa, Australia) this drift is continued in the form of a cold current proceeding northwards. The most important of these is the **Humboldt** or **Peruvian current**, which advances along the west coast of South America to 4° S. The presence of this cold water is now, however, ascribed by many to the rise of water from below to replace the surface water drifted westwards by the trade-winds.

Local currents are often produced at the mouths of inland seas from different causes. Through the excess of evaporation over rainfall and over the influx of rivers in the Mediterranean and the Red Sea, there are inflow currents at the Straits of Gibraltar and Bab-el-Mandeb to make good the loss of water which thus ensues; and for the opposite reason there are outflow currents at the mouth of the Baltic (Kattegat) and Black Sea (Bosporus). In each case, however, there is a deeper current in the opposite direction, no doubt due to the differences in saltness between the communicating seas. There are numerous other local currents which it is not always easy to explain, but which often have important effects through the sediment which they carry extending the coast-line seawards and silting up harbours.[1] Coasts directly exposed to currents carrying much sediment are generally flat and bordered by shallow seas, often lined with sand-dunes, and hence not easily accessible to shipping; while rocky coasts, on the other hand, are generally bordered by deep seas and have numerous creeks and natural havens.

Marine Life.—In the sea, as on land, the greatest variety of animal and vegetable life is found within the tropics, species becoming less numerous towards the poles. In the sea, animal life is everywhere much more abundant and varied than vegetable, and it extends to a much greater depth. Even the lower forms of Algæ (the group to which most sea-plants belong) do not extend below 250 fathoms, while animals have been dredged up even from a depth of 3,000 fathoms. Among the forms derived from these dark deeps a large number are phosphorescent—emit a light of their own. The effect of the uniform deep-sea temperatures on the life of the waters is worthy of note, inasmuch as it enables some species of whales, for example, to live in all parts of the ocean.

---

[1] See pp. 181-2, p. 354 (top).

The oceanic circulation is of importance to ocean life in several respects. In the first place it is chiefly by means of the vertical circulation—that is, the sinking of cold polar waters from the surface to the bottom (to rise again at the equator)—that oxygen, which is as necessary to life in the ocean as on the land, is carried down to great depths; and the comparative dearth of life in the Mediterranean, for instance, is explained as a consequence of the submarine ridge at its mouth shutting out the bottom waters of the Atlantic and so limiting the supply of oxygen. Secondly, almost all the fishes extensively used for food (cod, herring, &c.) inhabit cold water, and are brought in immense profusion by cold currents to lower latitudes than they would otherwise reach, as to the shores of Newfoundland in North America, Yezo and Korea in the east of Asia, Table Bay in the south-west of Africa.

Climate.

Under this head three subjects are considered: **temperature, rainfall, and salubrity.** On the distribution of temperature and rainfall over the surface of the earth much light is thrown by facts that have been mentioned already. Near the beginning of this Introduction it was explained why temperature is on the whole higher within the tropics than elsewhere. There also temperature is on the whole most equable throughout the year, because in that zone the variations in the height of the sun are less, especially in very low latitudes.[1]

The torrid zone is also on the whole the region of the greatest rainfall, which is a natural consequence of the nature and origin of rain. The source of rain is vapour or invisible moisture in the air, and the vapour is due to evaporation, or the conversion into an invisible form of water (snow or ice), a process always going on over the surface of the globe, and especially over the ocean. Though the process goes on even at freezing temperatures, evaporation is hastened by heat, and is always greatest where heat is greatest, and hence most rapid in tropical seas. To condense or render visible this vapour, cold is necessary; but even in the torrid zone that cold is found in the higher regions of the atmosphere, to which the moisture is drawn up by ascending currents of warm air. The vapour is first condensed into clouds, which consist of minute drops of water (hence elevated mists), or, when very high, of particles of ice. The necessity for a certain amount of cold to produce condensation is an important fact to bear in mind in considering the distribution of rainfall. The greater the cold the less the amount of moisture that can remain as vapour in the atmosphere. Hence it is that all parts of the earth where the rainfall is very deficient are such as have, at least, very warm summers, for where the atmosphere is very cold even a small amount of moisture will be condensed. Hence, too, on the other hand, even in the torrid zone, the trade-wind region has very little rain, for, great as the evaporation is, the winds are always carrying the moisture onwards to latitudes where still more vapour can be retained without condensation. The belt of calms and variable winds between the trade-wind belts is that in which the most regular tropical rains occur. In it heavy rains take place daily, but, as generally happens in tropical climates, the rain falls in deluges[1] when it does fall, but not for long together.

---

[1] Except on the borders of the torrid zone the sun is to be seen at midday sometimes to the north, sometimes to the south, of every place within that zone, and the variations in the height of the sun are consequently less than where for half the year its position at midday is always becoming further north, for the other half of the year further south, as it does everywhere outside of the torrid zone.

Such are the most general facts regarding the distribution of rainfall and temperature over the globe; but the circumstances that modify that distribution are of even greater interest, if not of greater importance. And with regard to the modifying circumstances there is one general fact to be borne in mind, that it is the winds which are the direct carriers both of temperature and moisture from one part of the earth to another. The modifying circumstances accordingly are those which affect the amount of heat and moisture which the winds carry. Of these there are three of sufficient consequence to be taken into account even in the briefest outline of the present subject. These are (1) the general relations of sea and land; (2) ocean currents; and (3) superficial configuration.

(1) **Effects of the Relations of Sea and Land.**—(*a*) As regards temperature, the sea being more slowly heated and cooled than the land,[2] regions under the influence of sea breezes have a more equable temperature than those in the interior of continents removed from such influences. This is shown in the most instructive manner on charts indicating the average or mean temperature of different parts of the globe by means of **isothermal lines**—that is, lines connecting places having the same mean temperature for particular periods (as the whole year, the winter or summer months, the months of January and July &c.) A comparison of the isothermal lines for January and July in the north temperate zone is what brings the fact now dwelt on most prominently into view, showing at a glance that the former isothermals (those for the coldest month) rise, while those for the hottest month sink on both sides towards the sea. In other words, they show that when

---

[1] Mostly in the afternoon and evening, when the power of the sun has declined.

[2] See above, p. 48.

we proceed inland from either coast on the same parallel of latitude we come to places that have greater cold in the depth of winter, greater heat in the height of summer, than those from which we started.

(*b*) **As regards rainfall,** regions exposed to winds from relatively warm seas have abundant rain. Hence it is that, except where mountains intervene, all parts of the earth in which monsoon winds prevail have abundant rains during the summer of the respective regions (in opposite seasons accordingly in the northern and southern hemispheres), and that the rains are most plentiful where they come from tropical seas (India, Indo-China, Eastern Archipelago, north of Australia).

(2) **Effects of Marine Currents.**—These are most marked where the temperature of the current is considerably different from the average temperature of the latitude. Hence the warm currents which have the most noteworthy effect in this respect are the **Gulf Stream Drift** and **Kuro Siwo Drift**, and more especially the former. The effect of these currents is, on the one hand, to equalise the temperature of the west coasts of Europe and North America in a much more marked degree than is done by the mere proximity of the sea, and, on the other hand, to supply the same coasts with plenteous rains, which fall all the year round, but chiefly during the autumn and winter months. The equalising of the temperature is chiefly the result of the raising of the temperature of winter by the prevailing south-west winds, which have their temperature maintained by the warm currents over which they blow. But it must also be remembered that the summer is cooled not only in consequence of the sea being everywhere in that season colder than the land, but also through the prevalence of clouds which keep off the heat of the sun. The abundance of rain is due to the relatively great amount of evaporation over the warm seas, and its greater abundance in autumn and winter to the fact that there is then the greatest difference between the temperature of sea and land.

A moist, mild, and equable climate is thus the characteristic of the regions under the influence of the currents above named, and in the latitudes to which they belong the extremes of temperature increase and the rainfall on the whole diminishes as we go eastwards, until we approach the eastern shores, where again an equalising effect is observable to a comparatively slight extent. The easterly increase in the cold of winter is especially marked, and the part of the habitable land surface of the globe where the greatest cold is experienced lies near the north-east of the broader of the two great land masses of the northern hemisphere.

The cold current which has the most marked effect on climate is the **Humboldt or Peruvian current**, which advances so far within the tropic of Capricorn on the west coast of South America.[1] Similar but less marked effects are noticed in the west of Africa and Australia, where corresponding currents are found.

(8) **The effect of superficial configuration on climate is shown in various ways.** (*a*) In the first place, mountains often act as barriers to winds, and cut off the regions behind them from the temperature and moisture which they carry.[2] In the case of rainfall the effect of a mountain barrier is even more marked than in the case of temperature, because mountains (or the edge of a plateau), in compelling rain-bearing winds which strike against them to ascend to higher and colder regions of the atmosphere, cause most of their moisture to be condensed on the side exposed to the wind. The highest rainfalls are, therefore, always met with in elevated regions, and mountains, even when far in the interior of a continent, often have their position pretty well determined on a rainfall map through the indication of a higher rainfall where they are situated. Especially is this the case when their general direction is at right angles to the prevailing rain-bearing winds.

(*b*) The effect of elevation in lowering temperature has already been alluded to incidentally more than once, and is a fact familiar to almost every one. The effect is due to several causes. (1) Air is heated with greater quickness in proportion to its density. The rarity of the air at great elevations is therefore unfavourable to its temperature. The effect of the sun's rays on the ground or any object on which they shine directly is not diminished by the elevation. At the height of 10,000 feet in the Himalayas, Hooker on one occasion observed the temperature to rise to 132° Fahr. when shaded snow close by was at a temperature of 22°. (2) Air at any elevation receives very little heat from the direct rays of the sun. Almost all its heat is derived from the ground, partly by direct contact, but mainly through the dark rays[3] which are reflected from the surface of the earth; and hence not only is the temperature greater or less in accordance with the elevation, but also in accordance with the nature of the ground (its power of absorbing or reflecting heat). For this reason, too, the decrease in temperature with elevation is the more rapid the more isolated a mountain is—most rapid of all in balloon ascents. (3) Air is more readily heated the greater the amount of vapour it contains, since vapour absorbs the heat of the dark rays to an enormously greater extent than dry air; and, as a rule, the lower the elevation the greater is the amount of vapour present. The presence of vapour is of special importance in preventing the loss of heat by night, and hence dry regions even on plains are subject to great extremes of

---

[1] See p. 48. [2] See pp. 155, 157, 225, 244, *n.* 2, 260, 266, and comp. p. 325.

[3] That is, rays of heat unaccompanied by light.

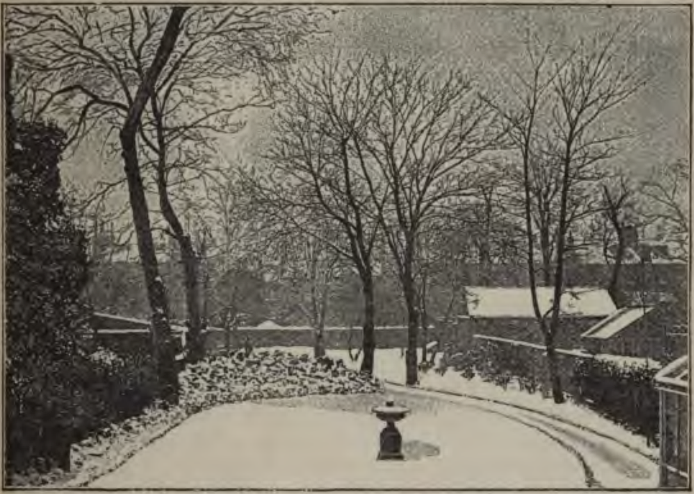
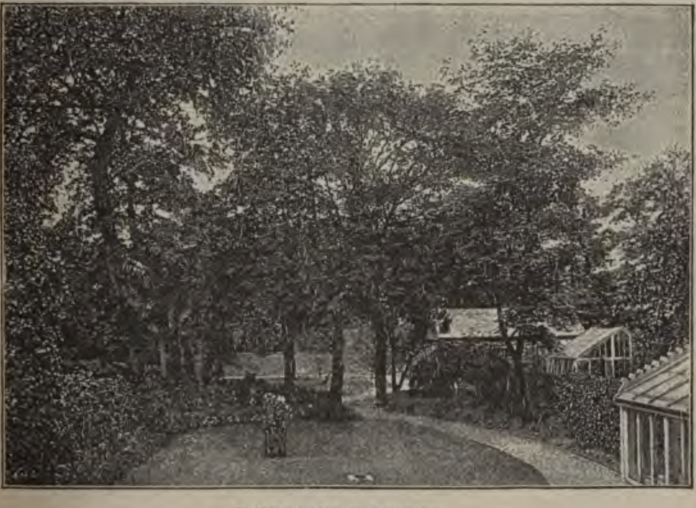


FIG. 13.—SCENE IN A LONDON GARDEN.—*A.* IN WINTER AFTER A FALL OF SNOW.



B. THE SAME IN SUMMER.

From Photographs by D. C. SIMPSON, Esq.

temperature by night and day, which has this advantage, that during the cold nights the ground becomes so chilled that what moisture there is near the surface becomes deposited in the form of dew.

On account of the variations in the circumstances affecting the decrease of temperature with elevation, the rate of decrease varies so much that no general rule can be given with regard to it. On a very general average the rate of decrease is about 1° Fahr. for every 300 feet of ascent.

The Snow-line.—Whatever the rate of decrease may be, it is everywhere sufficiently rapid to allow of the existence in all latitudes of mountains which rise above a limit beyond which their sides are clothed winter and summer with snow—the limit shortly called the snow-line. Even in the torrid zone near the equator a mountain 16,000 feet in height rises beyond that limit. The elevation of this line does indeed depend largely on temperature, and more particularly on the temperature of the hottest months, but is not determined by that exclusively. The moisture of the climate has a marked effect upon it and where more snow falls in the course of the year on the sunny than on the shady slopes of a mountain range, the former side, which usually has the higher, may have the lower snow-line, as on the Himalayas.[1]

One advantage of this accumulation of snow on mountains consists in this, that it affords a partial protection of the valleys from floods; but this advantage is not the sole one. Below the snow-line the winter cloak of snow is necessary to preserve many of the so-called alpine plants from a greater cold, which would destroy them; and it need scarcely be added that it has a similar advantage in plains that have a regular winter garment of the same nature. It is in consequence of this protection that winter wheat can be grown in Canada and the Canadian North-West, while it cannot be grown in the south-east of Russia, where the dryness of the air, and the consequent scantiness of the snowfall, leaves the seed exposed to the rigours of the winter frosts.

Glaciers.—In the folds or high-lying valleys of snow-clad mountains the snow gradually sinks through the pressure from above, and, after passing through a stage[2] in which it is composed of large granules which are neither ice nor snow (due to melting by day and freezing by night), at last gets consolidated into a mass of ice, called a glacier. The behaviour of a glacier is highly remarkable. Solid as it is, and rigid and brittle as we know ice in small lumps to be, the glacier moves slowly downwards like a river. It moves, that is to say, quicker at the surface than at the bottom, quicker in the middle than at the sides, quicker towards the inside of concave bends in its course than towards the opposite side. The rate of motion, however, is so slow as to amount in the Alps to only a few inches per day. The mode of its motion is difficult to explain, but it is known that even below the freezing-point ice can be melted by extreme pressure and that the water will at once freeze again when the pressure is removed; and it is also known that fragments of ice readily get re-frozen into a solid lump. Most probably, therefore, the motion which makes a glacier appear as if it were composed of a very thick or viscous fluid, is due to crushing or melting of the ice at different places, and to the melted parts freezing again, or the crushed parts becoming re-consolidated when they have escaped from the action of the crushing or melting force. The level to which a glacier may descend depends (like the snow-line) upon the temperature and the amount of moisture by which it is fed, but it is usually thousands of feet below the limit of perpetual snow.

---

[1] See p. 63, a.

[2] In this stage known as *névé* (French), or *firn* (German).

FIG. 14.—ARCTIC ICEBERGS.

Slow as the motion of a glacier is, so great is their mass (hundreds and sometimes thousands of feet thick), that glaciers must be reckoned as agents of no little importance in wearing away the land. They round off the inequalities in the surface of their bed, scratch the rocks, and bruise the smaller fragments against one another, and press the soft materials of their bed into a tough clay. From an ice-cavern at their lower end almost invariably issues an ice-cold turbid stream (glacier milk), the solid matter in which is in part an evidence of the grinding action of the glacier mass. Yet this solid matter is far from being wholly due to the grinding of the glacier on its bed. Much of it comes from above. By the process already explained frosts cause great quantities of matter to be poured down upon the surface of the glacier from the rocks which bound and surmount it, and the finer matter is washed down by the rains and melted ice, which chiefly feed the stream at the bottom, through the numerous fissures by which the glacier is traversed. The larger fragments remain at the sides of the glaciers, forming moraines.[1] Where two glaciers from two adjoining valleys unite, a middle moraine is formed by the union, and in the end many of these fragments are strewn at the foot of the glacier, where they form an end moraine. From the existence of such deposits at levels far below their present ones (as well as from other signs), it is known that at some remote period (yet geologically a recent one) glaciers in many parts of the world covered an enormously greater extent than they do now.[2]

Icebergs and Ocean Ice.—Where (in high latitudes) glaciers descend below the water's edge in sufficiently deep water, their ends get broken off, and float away as icebergs, which also have in certain parts of the world an important effect on climate. From the mode of their origin it will be observed that they are composed of fresh-water ice, and in computing their true size the relative weight of fresh-water ice and sea-water must be taken into account. The difference in weight between these two substances is such that only from one-tenth to one-ninth of the whole mass of an iceberg rises above the surface. The actual depth below the surface depends largely on the form of the iceberg, but has been found in certain cases by actual observation to be more than eight-ninths of the total height. In the case of regular flat-topped icebergs (very common in the Southern Seas), it may be always assumed that that proportion of the height is beneath the surface. How vast then must be the bulk of a glacier three miles long, and about 200 feet high, such as was seen during the *Challenger* expedition!

From the high latitudes where they take their birth, icebergs are drifted into lower latitudes by the cold currents which issue from Arctic and Antarctic Seas, and hence the set of these currents has an important effect on their distribution. Owing to the general north-easterly drift of the waters of the Southern Seas, icebergs may be encountered in comparatively low latitudes at many places in the south, but in the north they are confined to the western parts of the Atlantic and Pacific Oceans. It is only in these parts that they descend below 40° N., whereas they may be fallen in with at 40° S., or even lower, everywhere in the South Atlantic Ocean.

---

[1] See cut, p. 203.

[2] At this period, known as the *Ice Age*, the greater part of the British Isles appears to have been covered with ice, in some places thousands of feet thick.

The freezing of salt water takes place at a lower temperature than that of fresh—about 29° Fahr., instead of 32°—and the ice when formed is different in composition from the water of the ocean, which in freezing manages to get rid of a good deal of its salt. It is met with in various forms. When covering wide surfaces it is called **field-ice**; a large floating mass is called a **floe**; pieces of broken ice closely crowded together constitute **pack-ice**; and when floating about more freely in the direction in which they are carried by currents, they are known as **drift-ice**. The greater cold of the eastern shores of the Old World, as compared with those of the New, allows of the freezing of the China Sea below latitude 40°, while in North America the most southerly sea that freezes is the Gulf of St. Lawrence, about eight or ten degrees farther north. In both of these cases, however, the freezing is promoted by the exceptional freshness of the waters.

Salubrity.—The healthiness of a climate depends on such a variety of circumstances that little of a general nature can be said on this subject. A healthy climate for the natives of the region is often unhealthy for the natives of other regions. All low-lying tropical lands are more or less unhealthy for Europeans, and in warm countries generally, whether tropical or outside of the tropics, stagnant water is peculiarly unhealthy, producing **malaria**, and rendering the inhabitants liable to fever and ague.

Vegetation and Animal Life.

The vegetation of the land surface of the earth often has a distinct stamp in accordance with the physical features, and the nature of the animal life is greatly affected by the vegetation. Heat and moisture are the conditions most favourable to vegetable life; **the most luxuriant vegetation, therefore, is to be found in the moister parts of the torrid zone** (the valley of the Amazon and the islands of the Eastern Archipelago), **and the moister and warmer parts of the monsoon area.** Dense forests, composed of an almost endless variety of trees and filled with an even greater variety of vegetable life of other kinds, are characteristic in all these regions, except where there are thickly inhabited plains. Trees even advance into the ocean, forests of **mangroves** lining coasts within and near the tropics for hundreds of miles together, especially about the mouths of rivers. **Palms** are also highly characteristic, about a thousand different kinds being found within the tropics, and none far beyond their limits. Almost equally characteristic among animals are **monkeys, parrots, and termites or white ants,** the last of which are terrible devastators, and in some places, from the ravages which they commit among woodwork, compel the inhabitants to build houses of such light structure that they can easily be restored when their timbers have been hollowed out by these insects.

In the **temperate zones the variety of vegetation diminishes**, and in the cultivated parts of those regions the forests are for the most part confined to the mountains. There they are of use, like snow, in arresting the moisture and thus helping to protect the river valleys from inundation, as well as to prevent mountain pastures from being washed away by the violence of the rains. Still further north, forests, less varied still in their character, being now chiefly composed of pines and firs, again cover the plains, and are haunted by fur-bearing animals. Trees, shrubs, and herbs all in turn disappear, until at last on the borders of the Arctic seas the only vegetation consists of mosses and lichens, uniform in their character, but often rich, splendid, and highly varied in colouring.

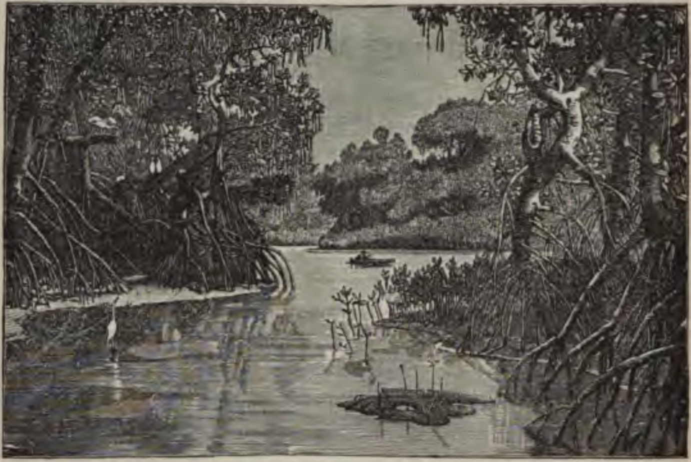


FIG. 15.—A MANGROVE SWAMP.

Characteristic changes are likewise observed if we pass to warm but arid regions. In **steppes**. grasses and lily-like plants, which by means of their thick matted roots and their large underground bulbs are enabled to withstand long periods of drought, are the prevailing vegetation; and hence burrowing animals which feed on these roots and bulbs are among the characteristic fauna (the bobak in South Russia, the prairie-dog in North America, the vizcacha in South America). Above ground, fleet-footed antelopes, horses, oxen, &c., graze the herbage, and these are followed by the carnivorous animals which make them their prey. In the vegetation of dry regions, trees and bushes with thick leathery leaves, with fleshy stems and prickles, like the cactuses of the interior of America and the euphorbias of Africa, are also characteristic. In deserts where there is any vegetation at all it is mostly composed of prickly plants (on which only the camel can feed); and in salt steppes the chief covering of the ground consists of pale green herbs (salt-bush, &c.), which sometimes afford good fodder for sheep and cattle.

The increase in cold with elevation causes similar changes in vegetation to be observed in ascending a mountain to those which are seen in going from lower to higher latitudes. A snow-clad tropical mountain exhibits all the varieties of vegetable life met with between the equator and the Arctic Regions.

Man.

The vigorous vegetation of the moister parts of the torrid zone is in itself unfavourable to the development of man, leaving little room for human habitations; while the enervating effect of the heat and the ease with which food can be obtained from the vegetable kingdom, cause him to be little disposed to contend with nature so as to keep down the aggressive plant life. Hence the island of Java and some parts of southern India are the only regions of the torrid zone in which the density of the population approaches that of the more populous districts of Europe. Both of these countries, it should be observed, are now under European control. In Java the present density of population is a direct consequence of European (Dutch) management; and though southern India may have had a tolerably dense population before it came under British influence, it must be noted that the greater part of that region suffers rather from a deficiency than from an excess of moisture. The oldest civilisations of which we have any record arose in the warmer parts of the temperate zone, and were in some cases (Assyria, Babylon, Egypt) assisted in their growth by regular inundations, which fertilised the ground and facilitated irrigation. The colder parts of the temperate zone, where the most advanced civilisations are now found, had to a large extent to be made fit for human habitation by the clearing of forests and the draining of marshes,[1] and the seeds of civilisation were planted there by people who had become powerful in warmer and drier regions. Rome laid the foundation of the higher forms of civilisation throughout a great part of Europe, both in the warmer and the cooler and moister regions; and even where it did not do so directly its example was, no doubt, directly or indirectly, of great importance in promoting that development elsewhere. In particular, it is to Rome that southern and western Europe owed the first construction of many of their chief roads, for road-making was one of the principal means adopted by that power for the spread of her own civilisation. Roads, indeed, are an essential condition of the maintenance of a dense population wherever there is not an exceptional abundance of waterways.

---

[1] See p. 194 (under Forests).

The ease with which a country can be supplied with roads is accordingly a circumstance of great importance with reference to the growth of its population, and this does not depend solely on the superficial configuration. Mountainous countries present one obstacle to road-making too obvious to need pointing out; but vast level plains may present obstacles of another kind, as in the plains of Hungary, where there is an entire absence of road-making material, and in those of Russia and Siberia, where, in addition to that deficiency, extensive marshes or soft ground offer further difficulties. Hence in such countries the construction of railways in quite modern times is a fact of peculiar importance. The railways (as well as the roads) of mountainous countries show the importance of superficial configuration by the way in which their course marks out the lowest levels and the easiest slopes. And here we may note that the importance of rivers with regard to communication does not lie solely in their navigability, but largely arises from this: that the valleys which they, with the help of rain and other denuding agents, have made for themselves often contain the routes along which roads and railways are most easily carried.

The Growth and Position of Towns.—Where a dense population exists, it is in some places pretty equally distributed over the surface, in others congregated to a great extent in large towns. Each town has its own history, and though the growth of all towns must depend more or less on physical features, the conditions that favour their growth are so varied that it is impossible to say why certain towns should be in certain places without taking that history into account.[1] Nevertheless there are one or two general facts of interest which it is well to bear in mind regarding the growth and position of towns.

Most towns, whatever their subsequent history may be, are originally centres of trade. They arise in places where it is most convenient for the products of a district to be collected in order to be sent out again in other directions to the places where they are required. Hence it is that in new countries with a one-sided industry, like the United States and the British colonies of America and Australia, which are chiefly engaged in the production of food and raw materials, large quantities of which they must send to Europe in order to supply themselves thence with manufactured articles, large towns have grown up with extraordinary rapidity (Chicago, St. Louis, San Francisco, Melbourne, Sydney).

---

[1] The modifications which man himself makes in the physical features of the globe have in many cases an important influence on the position of towns. It is for this reason, among others, that many of the chief towns of Roman Britain no longer have the importance which they once had.

When the positions most generally occupied by towns are considered, the influence of trade in promoting their growth may be observed under most of the heads under which these positions may be classified.

(1) Out of 233 towns which, according to recent returns or estimates, had a population of not less than 100,000, 102 are seaports—either situated on the sea-coast or near the mouths of rivers where they are navigable for sea-going vessels. In the case of river seaports, the situation is sometimes (*a*) at the highest point to which the tide rises (Glasgow), (*b*) at the head of navigation for large vessels (Brisbane), (*c*) at the head of navigation for smaller sea-going vessels. The increase in the size of sea-going vessels in modern times has in several cases led to old seaports being wholly or partly superseded by newer ones nearer the mouth of the same river or its estuary, as Bordeaux by Pauillac, Nantes by St. Nazaire, Rouen by Havre, Bremen by Bremerhaven; in other cases it has led to the artificial deepening of the old port and its approaches (Glasgow, Seville).

(2) Of towns which are not seaports, a large number are on navigable rivers, and among these (*a*) many lie at or near the confluence of two rivers (Wentworth, St. Louis); (*b*) many at river bends, where merchandise has to be landed in consequence of the change of direction in the stream (Echuca, Cincinnati, Galatz, Kazan); (*c*) many at the lowest point at which a river can be bridged (Buda-Pest, St. Louis), or at some point where the nature of the banks makes the bridging of the river exceptionally easy (Magdeburg); (*d*) many at the head of navigation (Albury, Rockhampton, Ipswich, Ulm).

(3) Many towns (whether situated on navigable rivers or not) owe their importance to their situation at the meeting-place of trade routes. In this case they may occupy either (*a*) a central position in plains, such a position being the natural crossing-place of roads from all quarters (Moscow, Bukarest); (*b*) a site in a fertile valley at the foot of a mountain pass (Tiflis), or the point of convergence of several passes (Milan); or (*c*) a position on the edge of a desert across which caravans carry the merchandise collected from other quarters by roads or rivers (Damascus, Timbuktu, Harrar, Lahore, Delhi).

(4) In many cases facilities for defence first led to the rise of towns, but their subsequent growth is greatly affected by their possession of advantages for trade such as have been pointed out.

(5) In modern times districts rich in coal and iron have become the seats of numerous large towns engaged in large manufacturing

industries (round Manchester, Leeds, and Birmingham in England; in Belgium; in the Prussian province of Westphalia, &c.), and some towns so situated are remarkable for their rapid growth (Barrow).

Towns once in existence (whether they owed their origin to advantages for trade or not) tend to grow in size for various reasons, and the causes of growth are generally most numerous in capitals, which accordingly are often very populous even where the physical features are not specially favourable to their development.

In the diagram on p. 63 A and B represent a section across Central Europe about the meridian of 8° E.: A, vertical 6 times the horizontal scale; B, vertical 15 times the horizontal scale. *a*, Col di Tenda; *b*, Turin; *c*, Monte Rosa; *d*, Mischabelhorn; *e*, Rhone valley (Brieg); *f*, Jungfrau; *g*, Aar; *h*, Rhine; *i*, Feldberg (Black Forest); *j*, Middle Rhine valley; *k*, Hardt; *l*, Westerwald; *m*, North German plain.

C. Section across Asia about the meridian of 87° E., from the valley of the Ganges to the delta of the Yenisei. *a*, Mt. Everest; *b*, Tibetan plateau; *c*, Kuen-lun; *d*, Altyn-tagh; *e*, Tarim basin; *f*, Tian-Shan; *g*, Byelukha (Altai); *h*, Siberian plains.

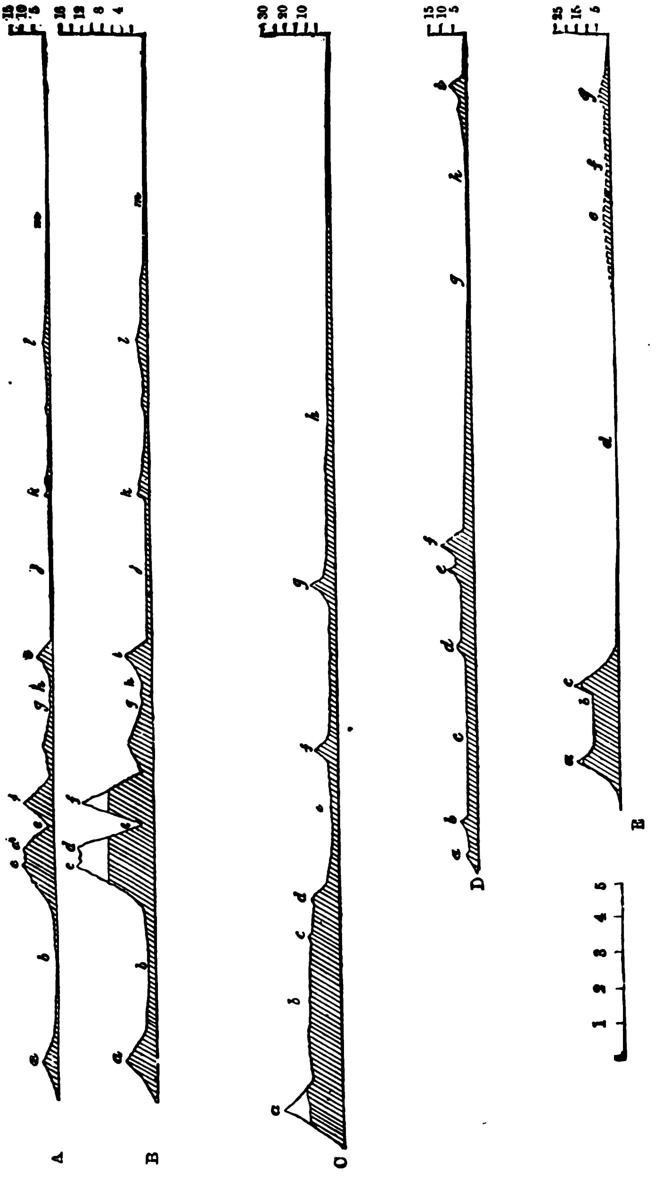
D. Section across North America about the parallel of 40° N., from the west coast to the Mississippi valley and thence south-eastwards to the Atlantic. *a*, Coast Range; *b*, Pilot's Peak (Sierra Nevada); *c*, The Great Basin; *d*, Wahsatch Mts.; *e*, Dome Peak; *f*, Long's Peak; *g*, Mississippi; *h*, Ohio River; *i*, Black Dome (Appalachian Mts.)

E. Section across South America about the parallel of 16° S. *a*, Misti; *b*, Lake Titicaca; *c*, Sorata; *d*, Amazon Basin; *e*, *g*, Brazilian mountains (elevations uncertain); *f*, San Francisco River.

The horizontal scale represents hundreds of miles for C, D, and E, intervals of 20 miles for A and B. In C, D, and E, the vertical is 30 times the horizontal scale. In B, C, and E, the untinted portion shows the height above the snow-line. The figures on the vertical scales indicate thousands of feet.

COMPARATIVE TABLE OF THE GREAT LAND MASSES OF THE GLOBE.

	Area in Millions of Square Miles.	Percentage of the Total Land Surface.	Ratio to Europe.	Population in Millions.	Density of Population.
Asia	17·3	32·8	4·7	830	57
America . . .	14·8	28·2	4·0	125	9
Africa . . .	11·5	22·0	3·1	130	11
Europe . . .	3·7	7·1	1·0	380	101
Australia and Oceania . .	3·5	6·6	0·9	4·7	1·4
Arctic and Antarctic Regions. . .	1·7	3·3	0·5	...	...


A
B
C
D
E
15 10 5
16 12 8 4
30 20 10
15 10 5
25 15 5
a b c d e f g h i j k l m
a b c d e f g h i j k l m
a b c d e f g h
a b c d e f g h b
a b c d e f g
1 2 3 4 5

AFRICA.

Approximate latitudes: (Cartagena) Cape Blanco, the northernmost point of the continent, 37½° N.; north of Lake Victoria Nyanza (Cape Romania), 1° N.; (Montevideo) Cape Agulhas, the southernmost point, 35° S.

Approximate longitudes: Cape Verde to Cape Guardafui, 17° W. —51° E.

AFRICA is a continent lying to the south of Europe, and bearing some resemblance in outline to the other great tropical continent of South America, inasmuch as it is broader in the north, and tapers towards the south, but, having a more northerly situation than South America, its broader part is not so entirely tropical as in that continent. Its total area is about eleven and a half million square miles, or more than three times as large as that of Europe; its population is very uncertain, but it is estimated at upwards of 200,000,000. Misgovernment, internal wars, and the practice of slavery keep down the density of the population almost everywhere in the interior.

The superficial features contrast markedly with those of all the other continents. Africa has no wide plains near the coast, but consists principally of plateaux, varying from about 2,000 to 9,000 feet in height, surmounted in many places by mountain chains, and generally sinking pretty rapidly to the coast, where the strips of lowland are comparatively narrow. The principal mountain ranges are those of the **Atlas**, which run parallel to the western half of the Mediterranean, and the **Drakensberg** or **Quathlamba Mountains**, in the south-east. The principal series of plateaux extends from north to south towards the east side of the continent, and is broken only by the valley of the Zambezi.

Within a few degrees of the equator these plateaux are surmounted by several old volcanic cones rising above the snow-line. The highest are **Kilimanjaro** (nearly 20,000 feet) and **Kenia** (about 18,500 feet), both south of the equator, near the eastern border of the elevated region; the next in height, **Ruwenzori**, just north of the equator, about seven degrees to the west (p. 273, *n*. 1). On these plateaux lie also a number of **great fresh-water lakes**. The largest of all is **Lake Victoria Nyanza**, or **Ukerewe**, on the equator, a lake estimated to have an area of about 30,000 square miles, and hence little smaller than Lake Superior, in North America. To the south-west is the long and narrow **Lake Tan-**

ganyika, about half the size of Victoria Nyanza, and still farther south **Lake Bangweolo.** East of the latter, on a lower plateau, is **Lake Nyassa**, about the same size as Tanganyika. All these lakes lie within the southern half of the torrid zone, except a small portion of Victoria Nyanza.

All the great rivers of Africa except the Nile belong wholly to the tropical portion of the continent.

The **Nile**, the longest of all, has its head-waters collected by Lake Victoria Nyanza, from which it issues in the north, and after touching the end of a smaller lake (**Mwutan**[1]), in the north-west, winds northwards to the eastern half of the Mediterranean. From Abyssinia it receives two important tributaries on the right, the **Bahr-el-Azrek**, or so-called Blue Nile,[2] and the **Atbara**, but in the lower half of its course it does not receive a single tributary on either bank. The other three great rivers of Africa, the Niger, Congo, and Zambezi, all describe great curves among the interior plateaux before making their escape to the coast through the bordering mountains. The **Niger**, rising far west, sweeps northwards, and then south-east and south, before it empties itself by a delta into the Gulf of Guinea. The **Congo** has its head-waters collected by Lake Bangweolo 12° south of the equator, and reaches 2° north before bending southwards again to enter the Atlantic Ocean in about 6° south. In respect of the volume of its water discharge this river is by far the greatest of African rivers. The **Zambezi** has numerous headwaters in a region thickly streaked with rivers, partly belonging to its basin and partly to that of the Congo, between 10° and 15° south, and after describing an S curve enters the Indian Ocean (Mozambique Channel) by a delta opposite the middle of Madagascar. All these rivers are great navigable streams, but all of them have their navigation interrupted, in their lower course, by falls and cataracts. In the Nile, however, these are high enough up to allow of nearly 800 miles of unimpeded navigation from the mouth.

The nature of the surface, together with other circumstances, causes Africa, as a whole, to be very deficient in rain. It lies in latitudes where the atmosphere is always able to retain large quantities of vapour uncondensed,[3] and, consisting like Spain mainly of plateaux with bordering mountains,[4] its interior is in most parts reached only by winds that have been deprived of the greater part of their moisture. Hence the only regions with abundant rainfall are the western part of the equatorial area and narrow strips on the south and south-east coasts. Two regions of exceptional drought occur, one in the north and one in the south.

---

[1] Sometimes called Lake Albert Nyanza. To the south-west of this lake lies another lake, now also known to belong to the Nile basin. Its shores were first partly traced in 1889 by Stanley, who named it Lake Albert Edward. From its north-west end issues the Semliki River, which flows into Lake Albert Nyanza through a deep valley bounded on the east by the lofty Ruwenzori Mountains (upwards of 16,000 feet high). To the north-east of this group of lakes lies a group of lakes without visible outlets. The largest of these is Lake Rudolf, discovered in 1888. Its water, though rich in soda, is drinkable (see p. 31).

[2] *Bahr* is Arabic for a stream. *Bahr-el-Azrek* means properly the turbid stream, as distinguished from the *Bahr-el-abiad*, or white (that is, clear) stream (of the Nile itself above its confluence with this tributary).

[3] See *Introd. p. 49–50.*

[4] See p. 224.

The former is the **Sahara**, extending from the Nile to the Atlantic, between the Atlas Mountains and the Eastern Mediterranean in the north, and the Soudan countries in the south, a region visited chiefly by dry winds from the Asiatic continent. Much of this vast area, measuring 3,000 by 900 miles, is absolute desert, sandy, stony, or rocky, but where there are temporary streams[1] or underground moisture there are inhabited oases, some of them thousands of square miles in extent. The other region of exceptional drought is in South-west Africa, north of the Orange River, where the dryness of the air is increased by a cold current which creeps along the south-west coast, and reduces the evaporation.[2] This region is known as the **Kalahari Desert** though it is in fact mainly covered with thin grass, and is generally visited by copious dews at night[3]

South of Sahara lies **Lake Chad**, a large freshwater lake, which in times of flood has an outlet on the north-east to a depression incrusted with salt. North of Kalahari is **Lake Ngami**, the outlet of which similary loses itself sooner or later in salt lagoons.[4]

The vegetation and animal life of Africa answer to the climate. Dense liana[5]-bound forests occupy the moist equatorial regions, but the greater part of the continent capable of supporting vegetation at all is occupied by grassy plains with trees only thinly scattered over them, or without trees at all. On these plains tall thick-stemmed leafless prickly euphorbias[6] are in many places conspicuous, and in the south there is an immense variety of bright-flowered woody heaths. In the desert almost the only vegetation consists of thorny shrubs or tufts of coarse grass[7] growing here and there, and in the oases the sole dependence of the people is the date-palm,[8] which loves a sandy soil, but can suck up moisture by its long roots from a great depth. The principal cultivated grain is durrah.[9]

The characteristic animals of the continent are fleet-footed grass-feeders, and above all antelopes, which are to be seen at certain times assembled in countless herds and in great variety along with zebras, quaggas, and other animals, at well-known watering places, where they are watched at evening by the lion, hyæna, and other beasts of prey. The swift-running bird, the ostrich, also scours the plains, and where there are clumps of trees small troops of **giraffes** may be seen grazing the lower twigs with the aid of their long necks, or galloping from clump to clump across the country. Elephants and rhinoceroses haunt the forests and marshes, and hippopotamuses and crocodiles are found in many of the rivers. Monkeys and apes (chimpanzee and gorilla) are found both among trees and among rocks.[1] In the desert the **camel** (single-humped) is as indispensable as a beast of burden as the date-palm on account of its fruit.

---

[1] Generally known by the Arabic name of *wadis*.

[2] See Introd. p. 51–2.

[3] See Introd. p. 52–3.

[4] See Introd. p. 31.

[5] Lianas are climbing and twining trees, such as are found in great abundance in all tropical forests.

[6] See Introd. p. 59.

[7] See cut, p. 26.

[8] See cut, p. 67.

[9] See p. 273 n. 4.

The **inhabitants** of the north and north-east of Africa, including the Abyssinians (a Semitic people), Egyptians, and Berbers, as well as the Asiatic settlers, the Arabs and Jews, are all markedly different from those of the south and south-west, among whom the Negro features are more or less prominent. Among these features are protruding jaws, swollen lips, projecting heels, a black or very dark skin, and woolly hair, all of which are most highly developed in the true Negroes inhabiting the region to the south-west of the Sahara. The Jews are settled in considerable numbers in the Atlas States, and the Arabs are more widely diffused, being settled in large numbers in the north and east, and having the command of the trade (largely a slave trade) of a great part of East and Central Africa. The **Mohammedan religion** has been introduced by the Arabs into all North Africa,

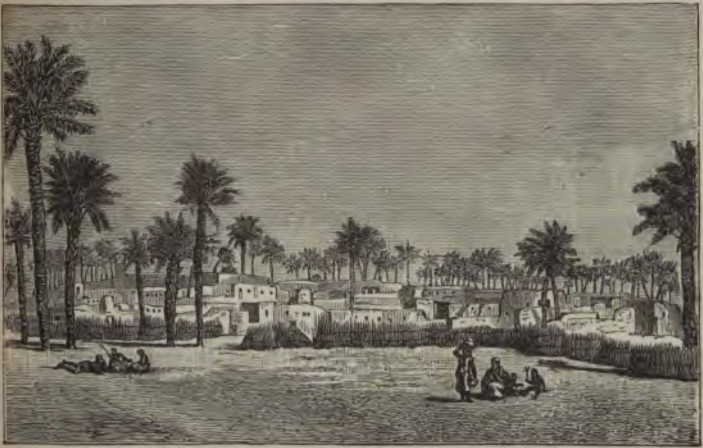


FIG. 17.—KATRUN, AN OASIS IN FEZZAN SURROUNDED BY DATE-PALMS.

---

[1] Comp. South America, p. 346

East Africa as far south as the Zanzibar coast, and into the Soudan states between the Nile and the Niger basin; and in Central Africa Mohammedanism is constantly gaining ground. Ancient Christian sects survive in Abyssinia and Egypt (in the latter country called **Copts**). The rest of Africa is heathen, except where there are European settlers (chiefly English and Dutch colonists in the south).

SOUTH AFRICA.

(From Cape Frio on the west and Cape Delgado on the east coast, and from the Zambezi in the interior.)

Approximate latitudes: (Arica in Peru), Cape Frio and mouth of Zambezi (La Grange Bay in West Australia, Rockingham Bay in Queensland), 18° South; (Montevideo in Uruguay), Cape Agulhas (King George's Sound in West Australia, Adelaide in South Australia), 35° South.

Extent.—South Africa—that is, the portion of the globe stretching from the Portuguese possessions on the east and west coasts, from Cape Frio to the mouth of the Zambezi down to the South Atlantic Ocean—although containing over three-quarters of a million of square miles, is but a quarter the size of the island-continent of Australia. The two countries have so many points in common, that there is no better way of understanding the geography of South Africa than to note the points wherein these great land-masses resemble one another, and those in which they differ.

The greatest breadth of South Africa, from east to west, is in about latitude 18° south, where the distance is more than 1,500 miles between the opposite coasts. The distance between the extreme points north and south, namely, from the Victoria Falls on the Zambezi to Cape Agulhas,[1] is 1,300 miles; but this distance is reduced to 1,000 miles at the mouth of the Umtamvuna River, where the land has made a decided bend.

[1] Portuguese = needles.

Coast-Line.—The coast-line of South Africa, like that of Australia, is remarkable for its long stretches of uniform character, without inlets that can be made use of by shipping even for shelter. As in that portion of Australia which corresponds in latitude to Africa, the portion of the coast-line which is richest in inlets and natural harbours is that of the east and south-east. From False Bay to Algoa Bay the shore is rocky, in some portions the mountains coming down to the water's edge, and at others being some distance inland. With the exception of a stretch in the Knysna and Humansdorp divisions, where extensive forests are found, the coast is inhospitable and dangerous. From the mouth of the Sunday River to Port Natal, the shore is hilly and covered with beautiful verdure. Thence, northwards, it is a low flat of sand or mud, which, within or near the tropics, is covered with mangroves. The west coast is especially uninviting. Omitting Table, Saldanha, and Walvisch[1] Bays, there is not a good natural harbour along the line, which presents an unbroken stretch of sandy beach backed by a chain of hills.

The east coast of South Africa presents a curious contrast to the corresponding portion of the Australian coast. To the north of Hervey Bay, in this part of the Australian coast-line which is directly exposed to warm sea-currents from the east, numerous coral reefs rise to the surface of the water, making the seas somewhat dangerous to shipping; and at about one degree north of the Tropic of Capricorn there begins a series of coast reefs such as are to be seen nowhere else in the world, over the same extent of sea. These form what is known as the "Great Barrier Reef." At the corresponding part of the African coast, the great island of Madagascar keeps off the warm marine currents which, in the Indian Ocean, also set westward in these latitudes; and hence it is on the eastern coast of that island, and not on that of the mainland of Africa, that similar coral formations are to be met with.

Off the east coast of South Africa there is at all seasons a strong current, formed by the union of the Mozambique and other currents, setting southwards, and flowing at the rate of about 2½ miles an hour. Turned from its course by the **Agulhas Bank** (extending for about sixty miles parallel to the coast), it then bends north-west, and mingles with the current in the South Atlantic. The Agulhas or Cape counter-current flows east. To the south of the Bank there is deep water; to the north, soundings are obtained.

Surface.—The surface of South Africa resembles that of Australia so closely as to make a comparison between the two even more fitting than in the case of the coast-line. Looking at maps of the two continents, we can hardly help noticing, as one point of likeness between the two, the fact that, in both, chains of mountains run from south to north at no great distance from the east coast, and then turn westwards where the coast begins to trend to the west. Cape Colony affords the striking picture of three parallel chains of terraces, which, from the seaward side, present the appearance of mountains. The innermost terrace is bounded on the south by a true mountain-range, with peaks of from 5,000 to 6,000 feet in altitude; but the table-lands on either side are 3,000 feet in height, or more. This chain is prolonged through Basutoland, Natal, the Transvaal, and thence to the mountains of the Zambezi, being known as the **Drakensberg**[1] or **Quathlamba,**[2] and **Lobombo.** The highest peak in South Africa is the **Mont aux Sources,**[3] in Basutoland, where the Orange and Caledon Rivers take their rise. The various terraces slope, generally, towards the interior; but outside of the inner mountain range the rivers nevertheless all flow directly seawards, and break through the edges of the table-lands in deep gorges ("kloofs").

---

[1] Dutch = whale.

The general shape of the mountains in South Africa presents none of the appearances of the long ridge-like chains, with snow-clad peaks rising to a great height above intervening notches, which are seen in Europe, Asia, and America. Here the formations are bold and massive in the character of their outline, but generally flat-topped, like the famous **Table Mountain**—the first promontory seen when the traveller comes from Europe. A characteristic feature of South Africa are the kopjes (small hills), all more or less of the same peculiar shape, and frequently dotted over the surface in apparently the most unexpected places. On the interior plateaux ice is common in winter, and snow frequently covers the slopes of the main mountain-chain; but nowhere does it remain all the summer through, as the perpetual snow-line is not reached in these climes. In the Zwartberg[4] range, in Cape Colony, are situated the world-famed **Cango Caves,** which have never yet been thoroughly explored.

Lieutenant Shirwell, an officer of the Indian Service, who had seen Elephanta and other caves, has stated that he found the Cango Caves superior to them. He remarks:—

"At the mouth of the caves a short ladder was lowered down, and we descended to the depth of 33 to 34 feet, and found ourselves standing in

---

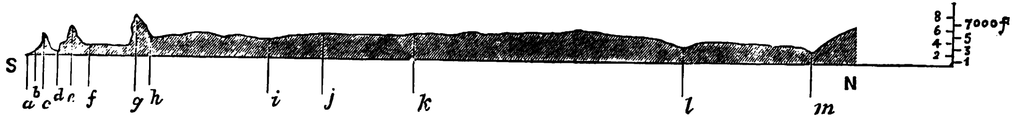
[1] Dutch = Dragons' Mountains.

[2] Kaffir = heaped up in a jagged manner.

[3] French = Mountain of Springs.

[4] Dutch = Black Mountains.

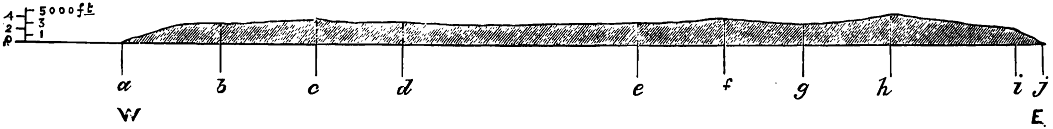
SECTION THROUGH SOUTHERN AFRICA FROM ZAMBEZI TO OCEAN. NORTH TO SOUTH.



(*a*) Sea level.
(*b*) Town of George, 620 ft.
(*c*) Summit of Outeniqua Range, 4000 ft.
(*d*) Town of Oudtshoorn, 1060 ft.
(*e*) Summit of Zwartberg Range, 5000 ft.
(*f*) Town of Prince Albert, 2120 ft.
(*g*) Summit of Nieuwveld Range, 7000 ft.

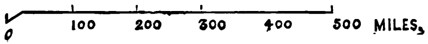
(*h*) Town of Murraysburg, 3800 ft.
(*i*) Orange River, 3500 ft.
(*j*) Town of Kimberley, 4000 ft.
(*k*) Town of Potchefstroom, 4100 ft.
(*l*) Lake N'gami, 3000 ft.
(*m*) Zambezi River Falls, 2460 ft.

SECTION ACROSS SOUTHERN AFRICA FROM ATLANTIC OCEAN TO INDIAN OCEAN. WEST TO EAST.



(*a*) Atlantic Ocean.
(*b*) Barmen, 3570 ft.
(*c*) Swass, 3950 ft.
(*d*) Rietfontein, 3450 ft.
(*e*) Manakalove Pass, 3600 ft.

(*f*) Waterberg or Maboola Mountains, 4000 ft.
(*g*) Zoutpansberg Mountains, 3000 ft.
(*h*) Lobombo Mountains, 5000 ft.
(*i*) Coast Range.
(*j*) Indian Ocean.



a vast hall of 600 feet in length, about 100 in breadth, and from 60 to 70 feet high. In the centre of this magnificent cave stands a colossal stalactite of 70 feet in height, white as the purest marble, and sparkling as if strewn with diamonds. From the roof depend enormous masses of lime, gradually growing into stalactital columns;[1] whilst on the damp ground, rising to meet these pendant masses, are huge stalagmites, formed by the continual filtration of lime through the superincumbent rocks; some have nearly met and formed columns, others are but commencing to form; in fact, the whole floor of the cave is strewn with stalagmites of various growths, and on the roof, opposite to each, hangs a corresponding mass. The work of filtration of calcareous matter is proceeding steadily, and in time this vast hall will become a labyrinth of pure alabaster-like columns. This cave is known by the name of 'Van Zyl's Vlak,' after the discoverer, a Dutch boer, who discovered the caverns whilst hunting in these mountains. Leaving this hall, we entered a small cavern about 40 yards square and 30 feet high. This is called 'The Registry,' from a practice of visitors writing their names on the pure, snow-white, lime walls. A few more paces brought us to the most beautiful and most wonderful part of the caverns. Whilst writing our names in the Registry, all the boers except one—who had delayed us purposely, by pointing out various names and superscriptions—had quietly slipped away; but on passing from this spot through a narrow passage, and entering the next cave, we soon perceived why they had left us. A sight at once beautiful and astonishing now burst upon us. We stood in a vast cave, 150 feet square and about 50 in height, the whole of the most dazzling and sparkling whiteness; columns and pillars snow-white, and some transparent crystallised lime stood on all sides, the roof covered with innumerable small and delicate icicle-looking stalactites, each with a drop of pure water hanging from the extremities; and as each drop parted company with its filter, and fell to the ground, it had the appearance as if a shower of diamonds was falling from the roof. The boers had all taken up positions with their lights to enable us to see the whole of this fairy-like cavern at one *coup d'œil.* I stood bewildered and astonished at this wonderful sight. In the centre of the cavern stands a column as pure and as white as alabaster. It is the height of the hall, 50 feet, and about nine feet in circumference, worked in the most minute manner. It is of pure crystallised lime, surrounded by horizontal bands or raised divisions at every three or four feet. These divisions are filled up with minute filagree-work and vertical lines; in fact, the column appears, to use a borrowed simile, as if 'raised by a giant and finished by a jeweller.' At either end of the hall are groups of the same substance, resembling bed-curtains and flowery drapery, running into elegant arabesques. All round the sides of the hall, the lime has taken the forms of various objects, amongst which fancy may discover a high altar of a Catholic church, decked out with all the paraphernalia of grand mass; stalactites resembling high and lofty candelabra, cups and goblets, steps and censers; in another corner may be seen a collection of elegant drapery, flowers, trees, and animals; one mass, in particular, bears an exact resemblance to the head of a gigantic bull. . . . Being continually saturated with water, the groups appear semi-transparent; the hanging and falling drops of water also reflect the light of the torches, giving to the whole a dazzling and sparkling appearance. The spar, where broken off, dries and loses its transparency, becoming a dull and opaque body. Leading out of this hall are innumerable passages; where they lead to, or how far they extend, no one knows. The walls are pierced in every direction with dark-looking openings, each leading into other caverns, thus making the whole mountain one vast network of caves and grottoes. As a specimen of natural excavation, I much doubt if these caverns are to be equalled by any in the world . . . both for beauty, height or extent, for their extent is as yet quite unknown."

---

[1] See Introduction, p. 29.

Between the second or Central range of mountains and the third one in Cape Colony, we find the "**Great Karroo,**"[1] about 300 miles long, 60 miles broad, and at a height of 2000 feet above the level of the sea. At certain periods of the year, not a trace of vegetation is to be seen here. It is indeed an awful solitude, in which one sees neither human beings, animals, birds nor plants. Stone, stone—nothing but stone; then miles of sand; then a return to stone again. During the long dry summer months, the smallest birds would hardly find sufficient food to sustain life. These regions, devoid of running water, are nevertheless not always barren. In the dry season the ground gets as hard as flint; but the roots of the plants, which are protected by a woody tegument, withstand the dreadful heat. The first rain refreshes them; the plants raise their heads, leaves and flowers appear; and the whole country, which a few weeks previously seemed a barren solitude, has been changed, as if by magic, into a wonderful garden, while the earth is clothed with a carpet of a thousand colours. As soon as the days begin to lengthen, and the power of the sun to increase, leaves, flowers and carpets disappear, and the land is again placed under the ban of the solar rays.

To the north of the Orange River an enormous plain extends, of which the western portion is termed the "**Kalahari Desert.**" Water is not altogether wanting, though on the surface there is little or none at all; but a sufficient quantity can be obtained by digging. The Kalahari has no doubt been called a "desert" from the absence of running water; but vegetation is not absent, as grass, creepers, and bush abound, and in many places large trees are met with. The soil is white sand, at times light yellow, almost pure silica. The dried-up earth, particularly in the waterless beds, becomes quite hard through the heat of the sun, and serves during many months as natural reservoirs to the natives. It will hardly be credited that grass grows here luxuriantly. In some places it reaches a height of from four to ten feet. The vegetation is of course not so rank in all parts, and farther to the westward it is conspicuous by its absence. The desert has its own peculiar winds and atmospheric phenomena, in the shape of a sirocco and mirage, &c.

---

[1] Hottentot = dry.

Geology.—In a geological sense South Africa is a region of great antiquity.[1] Rocks of a somewhat recent date cover only comparatively small areas, and in general attain no great thickness. Some of the oldest of all are rocks that no longer exist in their original form, having been subjected to such heat and pressure that their structure is entirely changed, and if fossils were ever present in them, no trace of them now remains. Such are the granites and gneisses which extend over vast areas in South Africa, mostly, however, beyond the limits of Cape Colony. In the granites there is no sign of stratification, but in the gneisses the same minerals that constitute granite are arranged in irregular crumpled layers of varying thickness. There next comes a series of rocks, the stratification of which gives a clear enough indication of their origin, but which are likewise entirely without fossils, so that only their position with reference to other rocks in which fossils have been found enables geologists to assign them a place in the geological scale. To these the name of the **Swazi System** has been given, because they occupy the greater part of Swaziland; but they are widespread, covering a large area in Cape Colony south of the Zwartberg range and on the west coast, as well as other large areas elsewhere. These strata are of special interest from the fact that they contain some of the most important gold deposits of South Africa (those of Barberton and the north of the Transvaal, as well as those of Matabeleland). In the next series of rocks we meet with the earliest South African fossils. The group of strata in which they are found has been called the **Cape System** from the fact that rocks belonging to it compose the small peninsula which terminates in the Cape of Good Hope. These strata also, however, are spread over a wide area, and they also are rich in gold, the deposits of Johannesburg and other places in the south of the Transvaal being found in them. Rocks of the **Karroo System**, those which come next in order, cover the greater part of the area of Cape Colony, Basutoland, and the Orange River Free State, together with portions of Natal and the Transvaal. The system is made up of several groups, the uppermost (most recent) of which, known as the Stormberg group, is remarkable as containing the coal-measures of South Africa, which are, in a geological sense, of a later date than the most productive coal-measures of other parts of the world.

---

[1] See pp. 33–34.

Though there are now no active volcanoes known to exist in any part of South Africa, yet volcanoes had originally much to do with the formation of the southern portion of the Continent. There are two mountains in the Stormberg range, Glatkopjes and Telemachus Kop, which retain the cup-shaped outline of the crater. Everywhere there are visible proofs of volcanic agency, and the action of intense heat in other ways. It is to these titanic influences that we owe the prevalence of copper in Namaqualand, diamonds in Griqualand, gold in the Transvaal, Matabeleland, and Mashonaland.

Climate.—The conformation of the surface of the land produces marked differences in climate and in rainfall, and the existence of two ocean-currents which wash the coasts of the southern portion of Africa increases them. Now, as we find similar differences in Australia, it is worth while to understand these differences, and to see how the likeness in climate between South Africa and Australia springs from the same cause. There is a similar kind of climate in both these parts of the earth, because they occupy a similar situation between two oceans in nearly the same latitude, and have the same form of surface.

To understand the cause of the likeness in climate between South Africa and Australia, it is necessary to keep in mind one or two great facts stated in the Introduction to this Geography. First of all, it must be borne in mind that the great source of moisture is the sea, and that the winds are the only means of carrying moisture from one part of the earth to another (p. 49). We must therefore consider how the winds generally blow in South Africa and Australia. Now both of these regions lie chiefly in latitudes in which the trade-winds blow over the ocean from the southeast towards a belt near the equator (p. 39). Over the ocean, on the east side of these land masses, the winds tend to blow towards the land; but on the west side, away from it. Yet the presence of the land has an influence on the direction of the winds. The fact that the broad plains in the interior are more rapidly heated in summer than the surface of the ocean is, causes the air above to be rarefied (p. 38), so that there is a tendency for the winds to blow inwards on all sides from the ocean; but this has different results on opposite sides of the Continent. On the east side it strengthens the winds which at all times tend to blow towards the land; but on the west side it has to act against the tendency of the wind to blow away from the land, so that the currents of air that blow inwards are only feeble, and bring with them so little moisture that that little is retained in the hot atmosphere of the interior as vapour, without falling as rain (pp. 49-50). On the east side of the Continent, on the other hand, the mountains and the edges of the table-lands have their usual effect in causing the moisture-charged winds to let fall their moisture (p. 52, (3), (*a*)); hence the coast-strip on this side is generally plentifully supplied with moisture. It is, however, an unfortunate circumstance for Africa and Australia that the highlands lie so near the east coast, thus causing the rain-bearing winds so soon to be deprived of the greater part of their moisture.

The amount of rain that falls on the coast-strip increases, on the whole, from south to north; seeing that the farther north we go, the winds that bring the moisture come from the warmer seas, and are hence more heavily charged with moisture. Within the tropics, where true monsoon winds prevail (see pp. 42 and 51, par. (*b*)), the amount of rain that falls in the year, mainly in the summer months, is, in some parts near the coast, over three times as much as at East London, and five times as much as at Mossel Bay. In winter, when the land gets cooled more rapidly than the adjoining seas do, and the air over the land becomes in consequence denser and heavier than that over the sea, the effect on the direction of the wind is opposite to that which exists in summer. The wind then tends to blow away from the land, and hence does not carry, as a rule, a great deal of vapour. But the greater coldness of the season favours the condensation of vapour into rain, especially on the mountain slopes and near mountains (pp. 49, 52, (3), (*a*)); so that winter is, in some parts, more rainy than summer. In general, rain when it does fall, falls in a deluge; so that South Africa may be described as a land of drought and flood.

There is one part of South Africa which receives nearly all its rain in winter from winds blowing directly from the sea; that is, the south-west corner and the divisions farther east, which lie near that part of the coast which looks south-west, including chiefly the earliest settled portions of Cape Colony. That part of the continent lies outside of the trade-wind zone in winter, when the trade-winds move farther to the north (p. 39). It then comes within the region in which the prevailing winds are from the north-west, and these, being vapour-laden from warm seas, deposit their moisture on the colder land, and especially where they approach mountains or hills.

From this account it will be seen that there is a part of South Africa which receives but a very small rainfall during the year. The north-west of Cape Colony is almost rainless, and this is the case with a large portion of the western half, except that part of it which is far enough north to have monsoon rains in summer, or far enough south to enjoy winter rains. Hence there are vast tracts in the interior of South Africa which are absolutely desert, and for ever doomed to remain without inhabitants, namely, those lying more to the west than to the east; and there are other large tracts that can produce only a scanty herbage, fit for nothing but sheep-rearing, and in many cases not to be depended upon in all years even for that.

Now this is very like what is found in corresponding parts of Australia. There also rain falls most abundantly on the districts lying to the east of the mountains and table-lands. There are several portions of Africa that are not likely to receive rain at any period of the year; and since Australia is much broader than Africa in these desert latitudes, the area of desert in that island is much greater than that of the corresponding part of Africa. In Australia, likewise, there is a corner in the south-west which receives most of its rain directly from the sea-winds in winter.

The want of rain is the chief drawback of the climate of South Africa, but where the rainfall is sufficient the climate has great advantages. Between the northern part of Mashonaland and Matabeleland which lies within the tropics, and the southern part, about ten degrees beyond the tropics, there are of course great differences in the temperature; but it is a great blessing, which all parts of South Africa enjoy as compared with many of the countries of Europe, that in the low grounds there is no winter of snow and frost to interrupt the labours of the field, or to make it necessary to provide shelter for horses and cattle. During the summer, intense heat is often felt in all parts, and especially in the dry plains of the interior (100° Fahr. in the shade at 8 A.M. have been recorded), but it is materially lessened by the sea-winds that then prevail. Almost all who live in South Africa will be able to appreciate this benefit when they think of the hot, parching, choking, dust-laden winds which now and then blow in summer from the plains of the interior.

The physique of the colonists is abundant proof of the salubrity of the country. There are certain portions of it which are less preferable to live in than others; thus the Zambezi Valley, some parts of the Transvaal, and the low coast region of Natal are subject to fevers; but, on the other hand, on the plateaux of the interior, fevers or other epidemics are almost entirely unknown. Generally speaking, South Africa is one of the countries of the globe most conducive to good health and long life.

Rivers.—The conformation and climate of South Africa explain the nature of the rivers. The river systems may conveniently be classed under two heads: the **Atlantic system** and the **Indian system**.

The **Atlantic system** includes the drainage area of the **Cunene, Orange, Buffels,** and **Berg rivers.**

The **Indian system** has three subdivisions, comprising (1) the **rivers of Cape Colony** and its dependencies; the **rivers of Natal and Zululand,** which rise to the south of the true mountain-range, but at a short distance from the coast; (2) the **Limpopo** area; and (3) the country drained by the **Zambezi** and its tributaries.

The rivers vary greatly in depth according as the weather is dry or rainy. Many of them are apt in places to overflow their banks. Few are navigable. For a short distance some may be ascended by boats or barges of light draught; but the streams bring down so much sediment from the neighbouring highlands in which they take their rise, or from which they derive their "feeders," that "bars" are formed in nearly all cases at their mouths, and the entrance of large vessels is thus prevented or impeded.

Of the great South African rivers, which (if we consider length only) might be reckoned among the principal rivers of the world, as they are all over 1000 miles long, we mention the following:—(1) The **Orange River** (or **Gariep**), which, rising on the Mont aux Sources (10,000 feet) in Basutoland, immediately on the confines of Natal, flows at first in a south-westerly direction, and then, making a sudden north-westerly turn, becomes the boundary between the Cape Colony and the Orange Free State; it then traverses the province of Griqualand West, being joined by the **Vaal**,[1] **Modder**,[2] and **Hartz** rivers, thus draining the Orange Free State and the eastern portion of Bechuanaland. It then takes a noticeable turn, and, flowing west—after receiving the waters of the **Molapo** on the one side and those of the **Hartebeest** on the other, and forming the dividing-line between Cape Colony and the Crown Colony of Bechuanaland, the Protectorate of Bechuanaland, and the German possessions in Namaqualand—precipitates itself over the Falls of Aukrabies and enters the Atlantic Ocean: (2) the **Limpopo**, which, rising on the Magaliesberg in the Transvaal, follows the characteristics of most of the large African rivers, and makes an enormous bend (resembling the Niger in general features), and, after a curve of over 1000 miles, enters the Indian Ocean, in almost the same latitude as that of its source, at a point not more than 400 miles in a direct line away from it: (3) the **Zambezi**, which, having its source in Lake Dilolo, flows in a south-easterly direction, and, passing through the Barotse Valley, is joined a little to the south of the northern boundary of the Chartered Company's territory by the Chobe River; with increased volume it then flows east for a couple of hundred miles, and, passing on its course over the magnificent "Victoria Falls," 100 feet high (Mosioatunya, *i.e.*, "smoke-resounding"), rushes headlong in a zigzag channel through the basaltic rock; then occurs the large bend (as in the two rivers previously mentioned), and the mighty stream—after receiving the waters of the Shirè, Loangwa, and several other rivers from the north, and of those of Matabeleland, Mashonaland, and the south-eastern Portuguese possessions from the south—passes Tetè and Sena, and disembogues through an immense delta into the India Ocean.

---

[1] Dutch = yellow.

[2] Dutch = mud.

Unlike the rivers of the Australian plains, those of South Africa are not capable of being used as navigable highways; but they may be turned to a very valuable account in the future by regularly supplying water, through artificial channels, to the large tracts which require only this fertilising influence in order to produce splendid crops. Where this can be done, the value of land so situated that it can be irrigated in this manner is always enormously increased. Irrigation has many advantages. It not only makes the supply of moisture regular and certain, but it augments the yield of crops grown on a certain area of land, especially where the water runs over the land and upon it, because the soil is enriched by a good deal of the rank sediment derived from the high grounds. It enables more valuable crops to be grown than those which can be produced without irrigation; and in a climate like that of South Africa, which is warm enough for vegetation all the year round, it permits crops to be raised almost without interruption, one crop following another in close succession. For all these reasons, where the climate is so dry as to make the growing of grain-crops uncertain, land that can be regularly irrigated will support a population from ten to twenty times as numerous as that which can be supported without irrigation.

Many rivers, seemingly long on the map, are hardly rivers at all, in the strict sense of the term: they are merely water-furrows, which may at times be filled with running water, but which are often empty except for a few days in the year. Many of them, after a longer or a shorter course, dry up and disappear, their waters having all sunk into the porous sand which forms their bed, or evaporated under the heat of the sun.

Vegetation.—The vegetation of South Africa is distinguished in many ways from that of other parts of the world. As far as flowers are concerned, it is one of the richest portions of the globe.

Comparing the areas of the two land-masses, South Africa is much richer in variety of forms than is the island-continent of Australia: 200 orders, with 7569 genera, are the totals for the whole world. Of these, 142 orders, with 1255 genera, fall to the lot of South Africa. The causes assigned for its richness in vegetable forms are: (1.) the meeting and partial union of two (perhaps three) distinct floras, of widely different age and origin; (2.) highly diversified surface of land and soil; (3.) a climate with much sunlight (or little cloud).

The climate exercises a great influence upon the distribution of plants; and in the Karroo Veld particularly, the plants that thrive most are those which, being the best fitted for their surroundings, have survived in the struggle for existence.

The trees of Southern Africa attain nowhere to such prodigious heights as do those of Australia. Some occasionally measure from fifty to sixty feet, but the majority grow no higher than twenty-five to thirty feet. In Victoria (Australia) some specimens of the peppermint-tree, growing in mountain ravines, have been known to reach a height of nearly 500 feet, which is higher than the pinnacles of most of the loftiest buildings erected by man.

The distribution and appearance of South African forests answer in a great measure to the character of the climate. It is on the slopes of the mountains and table-lands turned towards the sea, and more especially in the "kloofs" and "dongas" by which they are furrowed, that the trees are most crowded and most varied, and that the vegetation under the trees is most plentiful.

The popular names by which South African trees are known express, in many instances, the various properties that belong to the different species; as yellow-wood, iron-wood, melkhout,[1] assegai-wood, cedar-wood, laurel-wood, which all make excellent furniture, &c. Sneeze-wood is one of the most valuable woods on the continent; yellow-wood has been largely used in railway construction; olive-wood is another very durable species, and Cape-box is admirably adapted for wood-engraving. The camel-thorn, found north of the Orange River, is a stately tree; and nearer the tropics, mimosas, bread-fruit trees, baobabs, and palms attain to great heights.

In many of the more arid districts, and particularly during periods of drought, vegetation seems to cease; but even in these parts, where the climate is so dry that grasses do not flourish, there are certain herbs that thrive, and that yield good food for sheep and cattle. They are mostly diminutive little shrubs, peculiarly adapted to a region where rain is scarce and evaporation great.

The native grasses of South Africa are numerous and nutritious. On the long rolling plains of the Orange Free State, far away up into the Transvaal, on the undulating terraces of Natal, and in the rich fields of Zululand, grass grows at times to an extraordinary height.

Many plants useful for medicinal or for domestic purposes are indigenous to South Africa, including gum-mimosa, aloes, buchu, berry-wax, &c., besides numerous others of much value, the properties of which seem but little understood by Europeans; but they are used with excellent results by the natives and the country farmers. Among these medicinal plants are included the bitterappel, baviaansoren, dagga (Indian-hemp), doornthee, granaatappel, Hottentot-fig, kankerblaaren, n'gaap, slangenwortel, suikerbosch, stinkblaaren, schildpadbesjes, wormkruid, wildeknoflook, zouthoutbosje.

Animal Life.—The fauna of Southern Africa is rich and varied. Nature has endowed most of her children in this part of the world, be they beasts, birds, reptiles, or fishes, with wonderful aids offensive and defensive. Hair, feathers, and scales, of all possible shades of brown, blend marvellously with the surroundings of each representative of the animal kingdom in South Africa. The sluggish "cerastes" (hornslang), a snake hardly perceptible in the sandy soil in which it crawls, ready to strike its poisonous fangs into the unsuspecting victim, is as well adapted to its purpose in the economy of Nature as is the graceful buck or the tawny lion. There are no marsupials (pouch-animals), as in Australia; but there are numbers of other animals equally destructive. The **leopard** (erroneously called a "tiger" in the colony) and the **jackal**, as well as the **hyæna**, stand in the front rank as destroyers of sheep and cattle. **Bucks**, in their innumerable herds, may well claim equal rank with the kangaroo and wallaby, if not precedence of them, as ravagers of sheep-runs, by devouring and trampling down the grass, and make somewhat scanty amends by affording sport for the hunter and venison for the table; while their flesh dried in the form of "biltong" is in much request among travellers and for dietetic purposes. Many stories are told of the enormous distances which these bucks are able to jump when fleeing from their pursuers. Muscular, crafty, and savage **baboons**, frequently of large size, lay waste the vegetable-gardens of the farmers more ruthlessly and wantonly than any oppossum could; and troops of active little monkeys in Natal often bite down dozens of valuable canes in one night on the sugar-plantations, for the sake of the sweet juice which collects at the bottom of the cane, and immediately above the ground.

---

[1] Dutch = milkwood.

Land and sea in Southern Africa furnish representatives of the largest living mammals, the **elephant** and the whale. In many of the rivers the ungainly and powerful **hippopotamus** (zeekoe) may still be found; in Northern Bechuanaland the **giraffe**; in various localities the **rhinoceros**, of which there are several kinds. On the plains, troops of **gnus** (wildebeest), herds of springbok, and many other members of the great **gazelle family**—such as gemsbok, bontebok, steenbok, and koodoo—as well as the lordly eland, the magnificent sable-antelope, pallah, duyker, rhebok, rietbok, grijsbok, boschbok, klipspringer, hartebeest, and waterbok; whilst **quaggas** and **zebras** frequent the mountain plateaux. **Lions, ant-bears**, and **aardvarks** (earth-pigs) swell this already formidable list. The sea teems with fish of many kinds, and the fishing industry affords occupation and livelihood to a large number of people. **Alligators** are found in the rivers within the tropics, and are occasionally seen still in Natal; penguins and seals are to be met with on many islands off the coast, and flamingoes, pelicans, and albatrosses are not strangers in the land.

Among the **birds** of South Africa, the most noteworthy are the **ostriches**, the largest specimens of the feathered tribe, which scour the Karroo plains as the emu does those of Australia and the rhea those of South America. Eagles, vultures, secretary-birds, cranes, colonies of sociable and weaver-birds, the little kapokvogel (capocier), with its marvellously-built nest, finches, and lastly sugar-birds which rival in size, though not in brilliancy, the smallest humming-birds of Brazil. Bustards (paauws), pheasants, partridges, quails, and doves afford the sportsman ample opportunity for testing his skill.

Reptiles are well represented by snakes, some of considerable dimensions, such as the python or African boa-constrictor (which occasionally attains to the immense length of 30 feet), the mamba (of which there are at least three varieties, including the "cobra" or true hooded snake), pofadder, black adder, ringhals, whip-snake, boomslang, and scorpions. Among the arachnidæ we find the dreaded tarantula and enormous hairy spiders, which inflict a nasty venomous bite. Insects include tsetse-flies, the bite of which is fatal to cattle and many animals, and often causes severe running sores in men attacked by it, mosquitos (not forgetting the gigantic tiger-mosquito with its curiously-striped body), large and gaudy dragon-flies, among which is the dreaded gadfly, sand-fleas, ticks, large and small, big grasshoppers, and locusts, which occasionally commit fearful ravages. The last are often broiled by the natives and eaten with much relish, their flavour greatly resembling that of fresh shrimps.

South Africa, generally, is admirably adapted for cattle, horse, and sheep rearing; but there are many diseases to which they are subject, and from which many die.

On the other hand, hydrophobia is unknown among dogs. In testimony of the extraordinary salubrity of the climate, no better evidence could be adduced than the following passage from the report of the Colonial Veterinary Surgeon of Cape Colony for 1886, page 35:—

"Except it be when an epizootic disease" [corresponding to an 'epidemic' among men], "such as horse-sickness, red-water, or lung-sickness, breaks out amongst our domestic animals, and carries off a considerable number within a certain area, the greatest annual loss of stock throughout the Colony generally does not arise from disease."

Natives.—The first aborigines that Van Riebeek[1] met with were the **Hottentots,**[2] who inhabited the western portion of the Colony. They are people of low stature, slightly built, and of a sickly, dirty-yellow colour.

High cheek-bones, small elongated eyes, flat noses, and wire-like hair growing in scattered patches, are their chief physical characteristics. They possessed vast herds of cattle and sheep—the latter of a peculiar indigenous breed, with enormous fat tails—lived in kraals, and used bows and poisoned arrows as arms of offence. Karosses (tanned skins of sheep or of animals slain in the chase) formed their only covering. As a distinct race their numbers are now few within the borders of Cape Colony. Like so many other native tribes, they have fallen victims to habits of intemperance, and are at present notorious for their laziness and filthiness.

In close affinity to these people are the **Bushmen** (Bosjeman), more diminutive than the Hottentots, and, as far as the South African native is concerned, certainly the lowest in the scale of humanity.

The Bushman is found only in the west part of South Africa, in the Kalahari, and in Damaraland. Like all small people, he is by nature vindictive and treacherous. He is the most expert, daring, and untiring hunter on the African continent, and follows the track (spoor) of game for miles with unerring certainty and undaunted perseverance and skill. With a gun he soon becomes a dead shot. In common with other native races, he is in the habit of regularly swallowing the poison of the most venomous serpents, and on that account claims immunity from the effects of snake-bites; but be that as it may, it is an established fact that a Bushman very rarely dies, or even suffers any temporary inconvenience, from the fangs of the most deadly reptiles of South Africa. He is learned, too, in the medicinal virtues of many herbs and plants; and his faculty of going without water for an almost incredible time has often caused much surprise to white hunters. He can extract poison from almost every plant and tree that he meets with in his wanderings. The arrows, frequently poisoned, which he shoots with such unerring aim, serve either to kill a human enemy or to bring down an animal in the chase. His endurance and staying powers are most remarkable for so small a frame. These people have, as a rule, no settled habitations, but live in holes in the ground or in caves in the mountains; the walls of many of which caves they have covered with curious drawings, which show no little degree of skill and a good eye for colour.

By far the most interesting of all the natives are the **Kaffirs.**[3] The Kaffirs—standing, intellectually, infinitely higher than either

---

[1] See p. 86, under "Colonists."

[2] Word said to be formed from *hot* and *tot*, two syllables recurring in the language of the people.

[3] Arabic = unbeliever.

Hottentots or Bushmen—are divided into a large number of tribes. They are all members of the great "Bantu" family; and from the Indian Ocean to the Congo the same language, with slight dialectic differences, may be said to be spoken.

They vary considerably in colour, some being much darker than others. All are well built, tall, handsome, athletic, proud, haughty, and somewhat taciturn in their bearing towards strangers; warlike and fearless when in face of danger. Their heads are covered with thick woolly hair; their foreheads are high, their eyes are bright, and denote conscious dignity. Karosses and blankets form their usual covering, although they are very fond of dressing up in cast-off European clothing and gorgeous discarded military and other uniforms. Their arms of offence and defence include a bundle of stout sticks, which they wield with great adroitness, and in the manner of a quarter-staff (using one stick as a guard and the other for striking); assegais, long and short; shields of various patterns and colours; and knobkerries (sticks with a knob at the end). They have a peculiar custom of besmearing themselves with red-ochre and fat, using the latter, as they say, to make the skin supple, and to prevent the

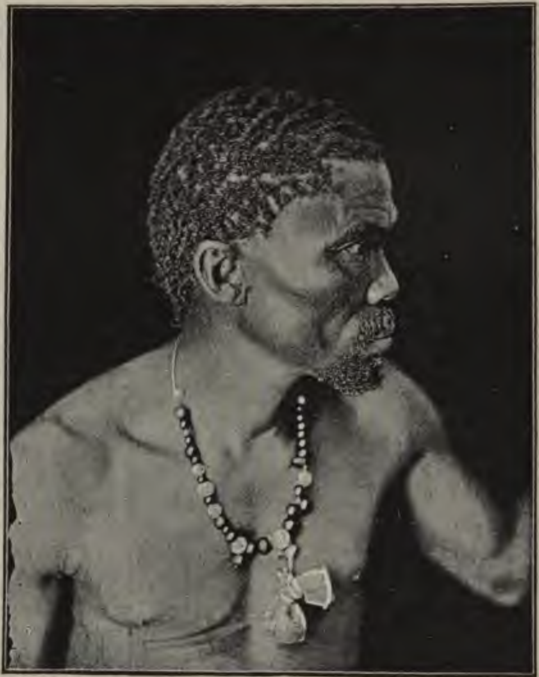


FIG. 19.—BUSHMAN.

sun from burning it. Many of them rub a mixture of powdered wood-ashes and caustic calcined roots into their hair, in order to keep it free from vermin. Outside European rule their government is despotic, the chief's will being law, although modified by the tribal councils. Many of their customs, of great antiquity, and some evidently borrowed from Jewish and Mohammedan sources, are exceedingly odious to the white man; and some of their most cherished rites are of a repulsive and very degrading character, despite all the efforts of missionaries among them. They own large herds of cattle, in which their wealth almost entirely consists, and live principally upon maize (mealies), millet (Kaffir-corn), and milk. Meat they seldom eat; but when they do, they gorge themselves in a disgusting manner, and require several hours' sleep to get rid of the effects of their debauch. They prepare an intoxicating drink (utywala) from Kaffir-corn. All Kaffirs are polygamists, wives being purchased for cattle, the

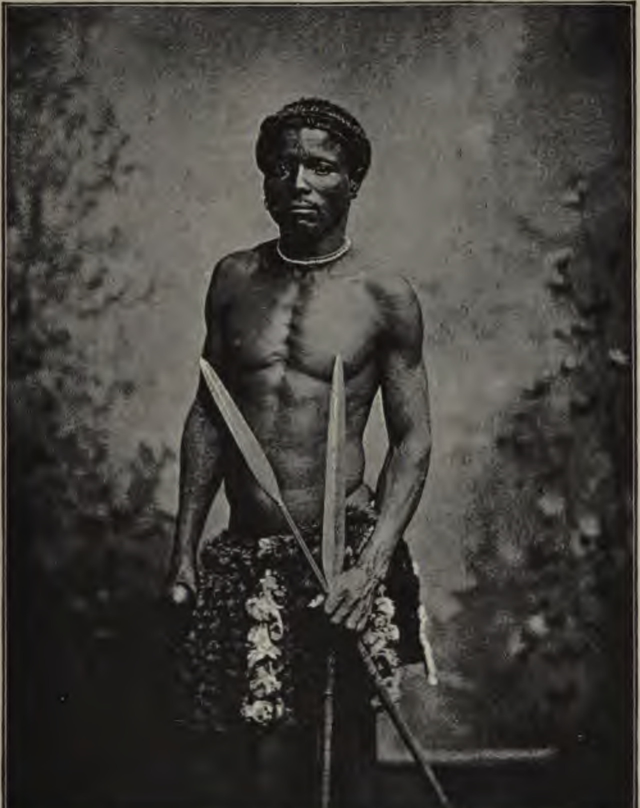


FIG. 20.—ZULU KAFFIR.

number to be paid varying with the status and attractions of the bride. The women wear ornaments of beads, and bangles both for arms and legs (often wrought into curious and ingenious patterns with iron, copper, and brass wire) are much in vogue. Socially the women occupy an inferior position; it is they who till the ground, and the youth herd the cattle, while the men spend their time idling, smoking, snuffing, palavering, and occasionally hunting.

Of religion the Kaffirs have next to none. They have a sort of hazy idea of a "Great Chief," the "Inkoos inkulu," but they are fearfully superstitious, believing in ghosts, venerating snakes—which they say are inhabited by the spirits of their departed relations—and completely under the control and dread of the "witch doctor." They are skilful in certain crafts; they are acquainted with the working of iron, make rough kinds of pottery, and plait basket-work so deftly and closely, that the vessels used by them for carrying water, milk, and sour-milk (imaas) are usually of this description, being woven from fine rushes, &c. Their huts are built of thin twigs covered with reeds, and in many cases plastered with clay.

In many of the towns of South Africa are to be found so-called **Malays**, who are in some instances descendants of slaves imported from the East while the Cape was under Dutch rule; but the term is now almost synonymous with Mussulman.

They are most numerous in Cape Town, where they figure as fishermen, dealers in vegetables and fruit, labourers and workmen; but their ignorance, indifference, and neglect in the matter of sanitation, have always been sore thorns in the sides of the Government and municipal authorities.

Colonists.—The passage round the Cape of Good Hope was discovered in 1486 by Bartholomew Diaz, a Portuguese navigator. No settlement of Europeans, however, was made in this part of the globe until Jan van Riebeck, a surgeon of the Dutch East India Company (chartered in 1602), arrived in Table Bay with about 100 men, and firmly established himself. This happened in 1652. The settlement of the Cape was for many years merely a station for supplying fresh provisions and water to the ships of the Company, which regularly put in at Table Bay for that purpose. Forts were built for the protection of the town and bay; the frontiers of the possession were gradually extended; but its productive powers were materially increased when, after the revocation of the Edict of Nantes by Louis XIV. in 1685, a large number of French Protestants (Huguenots), who had sought refuge in the Netherlands, were sent out to South Africa. These exiles devoted their best energies to the cultivation of the vine and the mulberry, the making of wine, the distillation of brandy, &c., the production of silk, and the development of agriculture and horticulture generally.

For 143 years the Dutch East India Company swayed the destinies of the inhabitants of Southern Africa. In 1795 a British naval and military force was sent to the Colony, to occupy it in trust for the Stadtholder of Holland, who had fled to England on the outbreak of a war with France. Mr. Sluysken, the Company's Governor, refused to hand over the colony to the British commander; whereupon General Craig, ordering his troops to advance, forced Sluysken to capitulate. England held the settlement till 1802, when, by the Treaty of Amiens, it was restored to the Batavian Republic. Four years later, war having again broken out in Europe, the Cape was taken by the British for a second time, by a force under Sir David Baird (of Indian renown), and its capture being confirmed by the Congress of Vienna, it has remained a British possession ever since.

One of the most important steps towards efficient colonisation was taken in 1819, when several thousand British emigrants were settled in that portion of the Colony lying between the Sunday and the Fish Rivers, in the divisions now known as Albany, Bathurst, Alexandria, &c. On the close of the Crimean War, a large number of the disbanded "British-German Legion" arrived, and were located in British Kaffraria.

The greatest enemies of the British power in South Africa have been the Kaffirs, with whom seven long and expensive campaigns have been waged. They have been, however, perfectly subdued, and are now living as quiet, law-abiding subjects.

The stream of general emigration has not set in so strongly towards Southern Africa as towards many other British colonies, but it is steadily increasing.

The Germans form the largest foreign element in the colony, and their value as steady, industrious, and persevering settlers can hardly be over-estimated. Many of them have risen to the highest political, social, and other positions in the community.

The history of the settlement, &c., of the other states and colonies of South Africa (all virtually the offspring of the Cape Colony), will be treated of under separate headings.

Government.—Amongst the various colonies and states in South Africa, Cape Colony possesses "responsible government." There are two Houses of Parliament, the Upper or Legislative Council, and the Lower or House of Assembly.

Both bodies are elected by the people, the terms of the franchise being exceedingly liberal; but candidates for the Council must possess a certain amount of solid wealth or of real property, in addition to other qualifications. The members of the Upper House, while so continuing, receive the "courtesy" appellation of "Honourable." The members of the Lower House are paid £1, 1s. per day for ninety days in the year, in addition to certain travelling expenses and a free pass on the railways of the colony, which latter privilege they share in common with the members of the Council. The Governor, who is also High Commissioner for South Africa, represents Her Majesty.

Natal was a "Crown Colony" from 1856 to 1893, but in the latter year obtained the right of self-government. Since then it has had an elected Legislative Assembly and a Legislative Council, composed of members nominated by the Governor.

Zululand was formerly divided into districts, each governed by a chief under the control of a British Resident, but early in 1898 it was annexed to Natal.

Northern Bechuanaland and **Basutoland** are governed, on behalf of the Queen, by His Excellency the High Commissioner, under whom there are Resident Administrators.

What is now the **Orange River Colony** was formerly an independent republic under the name of the Orange Free State, but having joined the Transvaal in a war against Great Britain, it was conquered, and proclaimed as a British Colony under its present name at Bloemfontein on the 26th of May 1900.

The **South African Republic** (better known as the Transvaal) is under the suzerainty of Queen Victoria, but is a self-governing country. Its affairs are intrusted to a President, elected for five years, and a Volksraad of two Chambers, the First and the Second. Its capital is Pretoria, which is now (June 1900), however, occupied by British troops.

Defence.—Portions of Her Majesty's army and navy defend the British colonies. Cape Town is the headquarters for the military forces, and Simon's Town for the naval squadron. At each of these places important works have recently been erected, armed with heavy ordnance. Simon's Town also possesses a naval dockyard, workshops, and stores. The Imperial forces are supported by Volunteer corps of artillery, engineers, and infantry, the Volunteers numbering about 5,000 of all arms. There are various semi-military bodies in Cape Colony, Natal, and British Bechuanaland, namely, the Cape Mounted Rifles, the Natal

Mounted Police, and the Bechuanaland Border Police. All able-bodied men in the Colony, between the ages of eighteen and fifty years, can be called out in case of emergency. The Chartered Company has its own force. The South African Republic has a strong artillery force. Both in that republic and in the former Orange Free State all burghers between the ages of eighteen and sixty were liable to be called out for service in war. When war with Great Britain actually broke out in 1899 both republics were able to put in the field a strong force, the numbers of which were, however, very variously estimated. The estimate for the South African Republic was put by some as high as 30,000, that for the Orange Free State as high as 20,000.

In the German and Portuguese possessions there are small detachments of military, which act chiefly as police.

COLONIAL INDUSTRIES.

Introduced Animals and their Products.—Throughout South Africa, wool is a very important and a staple source of wealth, vying with diamonds for the first place among articles of colonial production. The Cape, Natal, Free State, and Transvaal are all admirably suited for the growing of wool. Naturally the fibre varies with the pastoral capabilities of the different localities, the best quality being grown in the western districts of Cape Colony. In Europe the breed of sheep most noted for wool is the Spanish "merino," which is famous for its curling fleece of fine, strong, soft and lustrous fibre. Originally reared in Spain, a country with a climate like that of Cape Colony, which for centuries supplied the finest kinds of wool to all the other parts of Europe, this breed was afterwards successfully introduced into other European communities, and into South Africa by Colonel Gordon in 1790. Antiquated methods of depasturing, excessive shearing, neglect to eradicate the "scab," the system of "kraaling" for the sake of collecting the ordure, unproductive breeding, and the spread of the Xanthium spinosum (burr-weed), have all helped to lower the standard of the wool.

During Governor King's administration, about 1803, an officer named Macarthur started wool-growing at Camden, New South Wales, with a couple of Spanish merino sheep given to him by George III. It is in

Tasmania, however (formerly called Van Diemen's Land), that the merino has reached the perfection of the breed. Some merino lambs from Mr. Macarthur's flock were introduced into Tasmania in 1820, and by judicious breeding, great attention to pasturage, strict care as regards cleanliness, and the regular observance of sanitary pastoral laws, the Tasmanian merino rams are now the finest and most valuable in the world; all sheep-studs of any note in the Australian colonies being constantly recruited from them at enormous expense, £1,000 being sometimes paid for a "likely-looking" stud-sheep, the competition for their possession being exceedingly keen among Australian flock-masters. It is interesting to note that from 1788 (the year in which New South Wales was settled) and 1800 there arrived in that colony, the greater part from Calcutta and the remainder from Cape Colony, 304 sheep. In 1820 a shipment of 58 bales of wool from Sydney fetched an average of 3s. per lb. in London, and the best realised 5s. per lb. England's importation of wool from Australia in 1820 was but 99,416 lb. In 1888 it was about 340,000,000 lb., the average of washed wool, of which not much is exported, being 3 lb. 3 oz. per sheep. It has taken about sixty-three years to bring the Australian flocks to their present state, the best breeds of Spain Germany, and France having been laid under contribution to this wonderful result. "Shepherding" or "herding" is now extinct, the sheep being "paddocked," that is, kept in enclosures varying in size from one mile to many miles square. The favourable climate of Australia (and especially the balmy and invigorating atmosphere of Tasmania), has caused the merino-sheep to thrive to such an extent, that the wool, while retaining all its original excellences, grows to a greater length than elsewhere.

Many South African flock-masters, now alive to the paramount importance and advantages of improving the breed, have recently imported stock-sheep from Tasmania; and careful selection, judicious breeding, and fencing of farms are gradually but surely working a complete revolution in this great industry, the value and extent of which may be estimated from the following figures:—

Export in	1830 . . .	33,600 lb.	Value	...
„	1850 . . .	5,912,927 „	„	£ 285,610
„	1888 . . .	66,353,699 „	„	2,181,210
„	1898 . . .	73,732,926 „	„	1,766,740

Sheep in Cape Colony are, especially in the Karroo, reared on large tracts of land, often many thousand morgen (1 morgen = 2 acres) in extent. This region, with its dry and pure atmosphere, its widely-spreading treeless plains covered with short scrubby "bush," and with a strongly saline soil, is particularly adapted for producing a strong and healthy species of sheep.

The indigenous or native Cape sheep is largely represented in the Western coastal districts of Cape Colony. It is covered with hair rather than with wool, and its fleece is therefore of but little commercial value; but its skin makes good leather, in great favour with organ-builders; its flesh is sweet and succulent, and the fat of its huge tail (often obliged to be supported by a two-wheeled "go-cart" fastened to the animal) supplies the place of butter in many localities.

Other European domestic animals have been introduced with the same success as sheep, but none of them have anything like the same relative importance to the population.

Another considerable industry of South Africa, particularly of

Cape Colony, is the breeding and rearing of the beautiful and gentle **Angora goat**, which yields the celebrated mohair.

This animal, a native of Angora or Enkure, a city of Asia Minor, was first imported by Colonel Henderson of Bombay. About 1840, Major Bird, a retired Indian officer, living in the Caledon district, Cape Colony, imported five Angora rams from Turkey. The Major left the Colony in 1848, and presented the choicest of his flock to Mr. de Vos, who farmed them for several years, keeping them pure at the donor's request. On Mr. de Vos's death, Dr. White, Mr. Franz van Aardt, and Mr. Paul Myburgh purchased these animals. Subsequently, Mr. Charles Barry, who died in 1878, bought the best animals—ewes—of Dr. White's flock, acquired the finest "blinkhaar" ewes that he could obtain, and imported several fine Turkish rams through the agency of the Ottoman Consul in Cape Town. Mr. C. Barry's lot of twelve rams was the last importation of Angora stud-sheep into the western districts of the Colony.

The Cape Government has recently imported some very valuable English **horses** for stud purposes. The Cape horse is not beautiful. He is bony, high-withered, and goose-backed; but he is hardy, plucky, and enduring.

In former years, Cape horses were much in favour as remounts for the cavalry of India and for artillery purposes, and a profitable trade in them was carried on between the Colony and India. Owing to neglect, however, and to other causes, the qualities of these horses have deteriorated, and the Indian remounts have had to be obtained elsewhere. It is hoped that the infusion of well-selected new blood, the interest now shown by the Government in the improvement of the breed, and the excellent prices obtainable in India for suitable animals, will encourage the farmers of the Colony (especially those of the Hantam district, where the best horses in South Africa are reared), to do all in their power to regain this important and profitable traffic.

Basutoland is famous for a breed of small horses, known as "**Basuto ponies**," of incredible endurance, patience, and pluck. The way in which these "cobs"—they are seldom more than 13½ hands in height—scramble up and down the sides of the steep hills of that country, with a heavy rider on their back, is perfectly astonishing. As with their progenitors of Cape Colony, sunshine or rain, winter or summer, plain, karroo, or mountain veld, all are alike to them; and the amount of work that can be got out of them is marvellous.

Cattle are exceedingly numerous, and of every variety of colour. Representatives of most English and Dutch breeds may be found, together with the long-horned, red, native cattle, and the small but shapely Zulu oxen. Off the different railway lines the transport of merchandise, &c., is effected chiefly by ox-waggon; and hence cattle-breeding, particularly for this purpose, is an important item in the pastoral pursuits of colonists. The cattle suffer materially (and not infrequently die) from the effects of eating prickly-pear, as their mouths become so sore that they are unable to graze. The rapid spread of this plant has, in some districts, rendered many farms almost valueless.

South Africa has practically a monopoly of the **ostrich-farming** industry, this continent being the natural habitat of the bird, where it runs wild in many districts. Twenty-four years ago there were only a few birds tamed. In 1895–6 there were 224,953 birds in the Colony (including Pondoland and Bechuanaland). The ostriches run in "camps," fenced either with "posts-and-wire," with a high mimosa-hedge, or with a combination of the two. The eggs, which are laid in a hollow made in the sand, are frequently hatched by an "incubator," and the "chicks," when they come out, require considerable attention. Their food, at this stage, is principally lucerne, fine gravel, and pounded bones. When they grow older they will eat anything.

In 1898 the weight of ostrich feathers exported was 369,778 lbs., representing a value of £748,565.

Cultivated Crops.—The cultivation of the soil has made slower progress in South Africa than the rearing of domestic animals has, yet it is only by the development of this industry that a dense population can be maintained. The Government of Cape Colony has made it easy for Europeans or natives to acquire small holdings, on which they can grow corn and other crops and depasture cattle.

Notwithstanding that there are thousands of morgen of ground quite suitable for the cultivation of wheat and other cereals, the land does not produce sufficient for even home consumption, and hundreds of thousands of pounds are annually spent for importing grain from Australia and America. The quality of the colonial **wheat** is good, but the average yield per acre would seem very small to an English farmer, since it amounts to about only six to eight bushels, which is only about a fourth of the average crop that he would reap. It is, however, maintained, on the other hand, that only half the quantity of wheat per acre is sown in South Africa as compared with the mother-country, and that the methods of colonial farming are in many cases, if not in the majority of instances, both primitive and unscientific. **Maize** (known throughout South Africa as "mealies") is grown from Cape Town to the Zambezi, and yields large returns. It is the staple food of the natives. Millet is used for making Kaffir-beer. Tobacco-culture is extensively carried on in the Cape Colony and in the Transvaal. Some years ago the Cape Government obtained the services of a tobacco expert from Germany, who has made many interesting and important experiments in regard to this industry

No tobacco is exported, the local demands being great and constant.

All kinds of **fruit** can be produced in the different parts of Southern Africa; those of the North Temperate Zone as well as those of the Tropics. In Cape Colony the **vine** is very generally cultivated. Of late this industry has been receiving most careful attention, both from the Government and the colonial vignerons; and it is to be hoped that "Cape wines" will, ere long, regain their ancient reputation, seeing that the grapes are superior to any found in Europe, and that the productive powers of the vineyards are greater than those of any wine-growing country either north or south of the Equator.

In **Natal, sugar-planting** is a settled and a skilled industry; and tea-gardens are showing steady returns, the tea being of excellent flavour and quality. Coffee and arrowroot also thrive there.

Minerals.—Besides introducing valuable animals and the cultivation of profitable crops, the European settlers first brought to light the mineral treasures which this portion of the continent contains. True it is that the natives in many districts were acquainted with the art of working metals, and in the far interior —until recently beyond the sphere of European influence—they sought for gold, from which they made rough ornaments; but the systematic working of the treasures of the earth is of comparatively recent origin.

Of the mineral treasures of South Africa, taken as a whole, by far the most important hitherto have been the **diamonds**. In this respect the Cape Colony takes premier rank among diamond-producing countries. Though younger than any similar fields of the world, the colonial mines have completely outshone all others both in richness and in area. They are situated in Griqualand West, about six hundred miles by rail from the metropolis. The first discovery of the precious gems was in 1867; but it was not until 1870 that a "rush" took place to the country north of the Orange River. Since then the annual value of the diamonds produced in these and other South African mines, and exported through the Cape Colony, has increased to between four and five millions sterling.

Diamonds are found loosely scattered among the river pebbles in the Vaal, or more frequently embedded in a peculiar bluish soil, which becomes harder and more crystallised the deeper the "workings" descend. The Kimberley Mine presents the appearance of a huge funnel, the deepest part being 600 feet below the surface. The search is now carried on underground by means of shafts and galleries or "drives." Despite the great quantity of precious stones (including amethysts, garnets, and other gems) already taken out of this gigantic hole, the largest ever excavated by human hands—the surface-area is equal to nearly thirty acres—the quantity of the yield shows no perceptible sign of diminution. The annual return now reaches the enormous total of five millions sterling.

The history of the discovery of diamonds in South Africa is of a romantic and wonderful character. A Hottentot shepherd found what he took to be a pretty pebble, and gave it to his master's children to play with. A trader, on visiting the farm, saw the stone, and begged the owner for it. It was then forwarded to the Hon. Dr. Atherstone, M.L.C., of Grahamstown, who pronounced it to be a diamond; and since 1870 "Colesberg Kopje" has become transformed into a tremendous gaping hollow. A few years ago this mine resembled a colossal spider's web, with its miles of wire running down into the pit, these wires being the lines on which the buckets containing the rich "blue" were hauled up and down by various mechanical devices and "whims." Owing to frequent, and sometimes disastrous, "slips" of "reef" and of "débris," the open workings had to be discontinued, and the mine is now worked like an ordinary English coal-mine.

On arrival of the "blue" at the edges of the mine, the process adopted is as follows:—Provided the "blue" is sufficiently decomposed not to require spreading out on the "débris floors," in order to reduce the naturally hard, compact mass (or "matrix") to a friable condition, it is at once placed in a washing-machine which rotates at considerable speed. The combined action of the water and of the centrifugal force of the machine itself on the "ground," throws the diamonds to the outer edge of the ring-shaped pan of which the machine consists, whilst the muddy waters flow off, to be again treated, lest any of the precious stones should have escaped detection. The day's work being finished, the machine is stopped, and the diamonds are deposited on a table, where they are carefully sorted.

The most valuable copper-mines of South Africa, not excelled in richness of yield by any in the world, are those of O'okiep, in Namaqualand. This district and its mineral wealth were known to early Dutch colonists in Governor Simon Van der Stell's time; but it was not until 1852 that the first copper ore was shipped to England. The present annual production is over 20,000 tons, valued at between £200,000 and £300,000.

Ores of iron, the most useful of all metals, are abundant in many parts of South Africa; but the expense of working them and of transporting the products has hitherto been so heavy in proportion to the value of the metal won, that these ores are scarcely worked at all, it being found cheaper to import the metal required, or the various articles made from it. The high cost of freight and the absence of direct railway communication with any of the ports of the Colonies, have also been hindrances to the development of many South African coal-fields.

Lead ore, zinc-blend, manganese, crocidolite, and other minerals are all found in Cape Colony; slate, copper, lead, and iron in

Natal. Coal is now being produced in yearly increasing quantity in the Cape Colony, still more abundantly in Natal, and also in other parts of South Africa. The Cape mines lie near the base of the Stormberg range, the most productive being at Indwe, about 60 or 70 miles east of the railway from East London to Aliwal North, others at Sterkstroom, Cyphergat, and Molteno, about the place where the line passes through the mountains. A small field yielding good coking coal is said to have been discovered near Aliwal North. The Natal coalfields lie in the north of the colony (at Newcastle and Dundee), 225 to 250 miles from Durban, and furnish a rapidly growing export. But of all the minerals of South Africa the most valuable is gold, above all in the Transvaal, where gold has been found, and is now worked, at Johannesburg, Barberton, Klerksdorp, and in the Zoutpansberg district. See also pp. 134–5.

The Johannesburg gold-fields date from 1885. In some places gold occurs loosely scattered among the soil or earthy matter, and appears in small grains or in large lumps (nuggets); in others, it is firmly embedded in rock, generally quartz-reef (as at Johannesburg), known as "banket." In the former case the presence of the gold in the earth is due to the wearing away by natural agents in past times of the rock in which the metal was originally imprisoned; and the earth rich in gold is in some places buried to a great depth by still later deposits. Districts in which gold is found in this form are called "alluvial" gold-fields, and from them gold is obtained by washing away the lighter earth with water. In other cases the first process is to crush to powder the rock containing the gold. Alluvial gold-fields are, as a rule, quickly exhausted.

The chief permanent benefit which a gold-field confers upon a region in which there is plenty of room for cultivation of the soil consists in this, that it attracts immigrants who may afterwards settle down there as agriculturists.

Commerce.—South African products consist, for the most part, of raw materials, which are shipped to England for manufacture. Several important branches of industry have been started in the various Colonies, and afford employment to a great number of hands. Most of these different sources of wealth are in their infancy, but they are being rapidly turned to account. The commerce of South Africa is now served by fleets of large, fine, and powerful steamers, some of the latest additions having a burden of upwards of 10,000 tons. Cape Colony, Natal, Delagoa Bay, and Beira are in regular steam-communication with Europe.

The commerce of South Africa, especially as regards its internal trade, is now likewise greatly assisted by the numerous railways which have been constructed. The short line from Cape Town to Wellington was the first made in Africa south of the Equator. Since then, railway development has been rapid and steady. The great trunk lines of South Africa may be said to have been completed in 1895, when Pretoria, already connected by rail since 1893 with Cape Town and Port Elizabeth, was so connected also with Durban and Lourenço Marques (Delagoa Bay). Port Elizabeth, belonging to the more populous and productive side of South Africa, is the chief importing centre, but Cape Town, in consequence of its geographical position, its docks (including a magnificent graving-dock) and breakwater, and its commodious railway terminus, is the chief port for landing and despatching passengers and mails, as well as the chief place of export of the two most valuable of South African commodities—gold and diamonds.

Since 1879 South Africa has been connected by **electric telegraph** with the rest of the world, through the completion of the great submarine line round the East Coast; the other, and shorter, along the West Coast, was finished in 1889. The East Coast cable starts from Durban, Natal, proceeds *viâ* the Portuguese possessions to Zanzibar, and thence to Aden, where it joins the main cable to the east. The West Coast cable starts from Cape Town, and follows the coast-line, stations being located at the most important points. A third cable now connects Cape Town with Europe by way of St. Helena, Ascension, and Bathurst.

The rapidly growing volume and value of the commerce of the South African Colonies and States, and the increasing outlets which it offers for British enterprise and trade, is shown by the fact that the imports from the United Kingdom to Cape Colony increased from little more than £5,000,000 in 1887 to upwards of £11,500,000 in 1898; while the exports to the United Kingdom increased in the same period from £7,300,000 to nearly £25,000,000. It is manifest, too, by the increase of the wool-trade, which, after gold and diamonds, is the most valuable export of South Africa.

At the beginning of the present century, Great Britain derived most of her foreign wool from Spain, the original home of the merino-sheep; but the total was only about 6,000,000 lbs. Now she receives from Cape Colony alone more than eleven times as much.

The chief articles of import from distant countries are manufactured goods, such as cotton, linen, and woollen merchandise; iron and steel, and articles made therefrom; tea, coffee, sugar, and large quantities of cereals, butter, and cheese.

Education.—The only University in South Africa is the University of the Cape of Good Hope, which is merely a body that holds examinations for degrees; but there are four Colleges for teaching connected with it, namely, the South African College (Cape Town), the Diocesan College (Rondebosch), Victoria College (Stellenbosch), and St. Andrew's College (Grahamstown). In the Cape Colony, the Orange River Colony, and Natal elementary education is good and cheap. In the Transvaal, education is still in a very backward state. The sparse population of the villages, the great distances of the farms from one another and from the chief towns, are only some of the most notable difficulties which the inhabitants of the South African Republic have to face as regards the spread of education.

THE BRITISH COLONIES.

THE CAPE COLONY.

The Cape, with its dependencies, is the largest of the British Colonies in South Africa, and occupies the extreme southern portion of the continent. It is separated on the east from the neighbouring Colony of Natal by the Umtamvuna River; from Basutoland by the River Tees, a tributary of the Orange; by the Orange River on the north from the Orange River Colony, Namaqualand, the Crown Colony of Bechuanaland (in part), and from the Protectorate of Bechuanaland; the Atlantic and Indian Oceans form the western, southern, and south-eastern boundaries. See table, p. 354.

The first permanent settlement in South Africa was made at Cape Town by the Dutch under Van Riebeek; the name being retained from that bestowed on the famous headland by the King of Portugal, John II.

A general idea of the history of the country, up to the time of the second British occupation, has been given in the introductory chapter (pp. 86–7).

At this period the population of the Colony numbered nearly 75,000 inhabitants, of whom about one-third were of European descent. Since then, the history of Cape Colony has been virtually that of the Kaffir wars. One of the most important historical events was the arrival, in 1820, of 4,000 British settlers, who were located in what are now known as Albany and the surrounding divisions. It would be difficult to over-estimate the influence for good exercised by these immigrants. After striving against almost insurmountable obstacles, failing crops, Kaffir invasions, floods, droughts, and a host of minor drawbacks, they gallantly overcame all impediments, and among their descendants are now to be found some of the foremost men in the Colony.

The Slave Emancipation Act, passed in 1833, was one of the causes that led to a vast number of boers (farmers) leaving the Colony. They professed to have been unfairly treated by the British Government in the matter of compensation; and, other reasons for discontent intervening, they preferred to seek their fortunes in the wilderness to continuing British subjects. Their subsequent history is recounted in the sections dealing with Natal, the Orange Free State, and the Transvaal.

A great bloodless victory was won by the colonists (1849), through the Anti-Convict Association, in a constitutional manner, against the intention of the Imperial Government to convert this Colony into a penal settlement. Thanks to the energetic stand made in those days, the Cape has been spared the scourge of contamination necessarily resulting from the presence of ex-convicts in the midst of the population.

The great native rebellion in 1850–52 of the combined Kaffir tribes was an attempt to "drive the white man into the sea." The defeat of the natives led to the extension of the colonial frontier.

In the last year of this war (1852) H.M.S. *Birkenhead* was wrecked off Danger Point, when nearly 500 men lost their lives. This calamity will for ever be memorable through the sublime heroism of Colonel Seton, his officers and men, their courage, devotion, discipline, and humanity.

A couple of years after this sad event, the Colony obtained Parliamentary government, the franchise being conferred upon every British-born or naturalised subject of Her Majesty above twenty-one years of age, occupying a house rented at £25 per annum, or receiving a salary of £50, or with board and lodging of not less value than £25 annually.

On the close of the Crimean War, the disbanded British-German Legion arrived in the Colony, and grants of land were made to the officers and men, and to some German agricultural labourers who soon followed, in the district around what is now King William's Town. The names Berlin, Potsdam, Charlottenburg, Frankfurt, Stutterheim, all tell us where our German cousins have located themselves under a Southern sun.

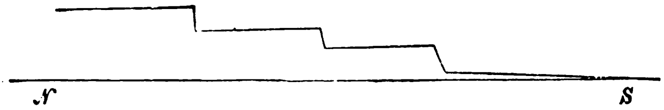
The great need of quick and easy communication between the metropolis and the more distant towns led to the construction of the first railway. As the Colony grew in wealth and importance, this line has been lengthened until it now reaches Bulawayo, and other lines have been constructed from different ports. See also p. 135.

The electric telegraph quickly followed, and its network now extends over the whole Colony.

The discovery of diamonds (see p. 93) in 1867 opened up a new country, which, in 1880, was annexed to Cape Colony, and gave a great impetus to trade generally.

The Gcaleka and Gaika wars of 1877 and 1878, in which the power of Kreli and Sandilli was broken and the latter killed, and the rebellion in Basutoland (caused by an attempt of the Colonial Government to disarm the natives), are the last military enterprises which the Colony has had to undertake. Peace on her borders and plenty within have enabled her during the last five years to make rapid strides in advance—an advance sure to continue. The opening up of the interior, the prosperity of the neighbouring States, the development of the resources of the Colony itself in respect to mining, wool-growing, grain-culture, the wine industry, cattle and horse breeding, and the fostering of the infant factories in the various towns, will all contribute to assist Cape Colony in worthily maintaining her position among the sisterhood of self-governing British possessions.

On looking at the map, one is immediately struck by the three parallel chains, apparently of mountains, which traverse the Colony from east to west; the third (the only true mountain-chain) continuing north-eastward. The peculiar terrace-like formation will be understood from the accompanying diagram, which represents a section of the land from north to south :—



The first range, that is, the southernmost, commences in the west of the Colony, then runs along the coast at but a short distance inland, and is known throughout its length under the respective names of Olifant's[1] River Mountains, Drakenstein,[2] Hottentots' Holland, Zonder Einde,[3] Langeberg,[4] Outeniqua, and Tzitzikamma Mountains, terminating in Cape St. Francis, which juts out into the Indian Ocean. Where the chain bends to the east, it sends out a spur to the south-west, which forms the eastern end of False Bay (Cape Hanglip), and is crossed midway by Sir Lowry's Pass,[5] which is the means of communication between the west and the south-west districts. The rivers from the high-lying uplands break through this and the other ranges by openings known as "poorts" (doors); and, in consequence of the steep incline from the sea, are mostly unnavigable. Along this coast portion some exceedingly fertile districts are found, and it is here that two of the large Crown forests are situated, namely, those of Knysna and Tzitzikamma. North of this range we step on to the first plateau, a region rich in the production of wine, wool, tobacco, and ostrich-feathers. It is bounded on the north by the steep wall which upholds the Lower Karroo, and is called in different localities Kareeberg,[6] Cedarberg, Zwartberg, Winterhoek,[7] and Zuurberg.[8] The Cockscomb (6,820 feet) is the most conspicuous summit of the range. Communication between this region and the coast westward is afforded through Bain's Kloof, and the Karroo is reached by Hex River Pass, Seven Weeks Poort, Zwartberg Pass, Meiring's Poort, and Montagu Pass.

[1] Dutch = elephant.

[2] Dutch = dragon-stone.

[3] Dutch = endless.

[4] Dutch = Long Mountain.

[5] Named after Sir Lowry Cole.

[6] A peculiar kind of colonial wood.

[7] Dutch = winter-corner.

[8] Dutch = Sour Mountains.

We are now on the vast plains of the **Great Karroo**, the principal features of which have been delineated previously. It is the sheep-rearing portion of the colony. The great drawback to the whole of this area is the want of rain, and large irrigation works are a matter of necessity. The Karroo country, however, is not of the same nature throughout. At the foot of the Zwartberg there is a very fertile belt, followed by a broad stretch of barren, inhospitable country, the Gouph[1] (where the average rainfall is only four inches annually), which is succeeded by another wide area up to the foot of the next plateau, admirably fitted for agricultural purposes. The eastern portion of the plateau differs somewhat from the remainder, and is unquestionably more fertile and fruitful, since it is better watered, the rainfall in the west varying from 6¼ inches annually, while in the east it ranges between 17 inches and 21 inches annually.

Proceeding to the northern boundary of the Colony, the traveller's progress is interrupted by the third wall, with its steep, precipitous sides. This is the "true mountain-range" already mentioned. It is more broken than the others, but well defined, and is named at different places Kamiesberg, Roggeveld,[2] Nieuwveld,[3] Sneeuwberg.[4] Here the complexus occurs, and one range runs off to the south-east, namely, the Zwagershoek,[5] Winterberg, Amatola;[6] while the other, the Stormberg, runs north-east and joins, later on, the Drakensberg. It is in this range that the highest peak in the Colony is found—the Compassberg, 7,800 feet.

The southern slopes of the small range running south-east are beautifully wooded, and in the Amatolas is another large Crown forest, the Perie Bush. Having passed through one of the poorts or kloofs, the top of the highest colonial plateau is reached. This land extends north and west in an immense plain, the western portion particularly, which gradually slopes towards the Orange River.

Namaqualand and portions of Calvinia, Fraserburg, and Carnarvon, are all as arid as the inhospitable Gouph itself. Between these districts, on the one hand, and the Orange River and the head-waters of the Kei[1] on the other, the rainfall averages from six inches to 18 inches annually (at Pella, on the Orange River, it is but two inches); whilst to the east of this line it amounts to 30 inches, registering in the Amatolas between that and 42 inches.

---

[1] Pronounced "cope."

[2] Dutch = rye.

[3] Dutch = new.

[4] Dutch = Snow Mountains.

[5] Dutch = brother-in-law's corner.

[6] Kaffir = calves.

The absence of moisture from the air, the clearness of the atmosphere, the long duration of sunlight, all tend to make the Cape Colony a magnificent sanitarium for those afflicted with chest-complaints; besides which, diseases of an epidemic nature rarely visit it, and many afflictions common in other southern climes, such as yellow fever and cholera, are absolutely unknown.

The Eastern Dependencies of the Colony have one well-defined mountain range, the **Quathlamba**, forming a sort of backbone from which the undulating, fertile, verdant plains extend towards the sea. The surface of the country is irregular; the streams, whose courses are separated by intervening ridges, generally flow in steeply inclined, deep valleys, along which some of the most picturesque and romantic scenery in South Africa may be found. In this region occurs the Tzitza Waterfall (375 feet), the highest in the Colony, and the beautifully wooded banks of the Umzimvubu.

The third, or true mountain-chain, the backbone of South Africa, acts as the watershed of Cape Colony. North of this range the colonial rivers are tributaries of the Orange, which, with the Kornet Spruit and the Caledon, drains Basutoland and the eastern portion of the Orange Free State. The Vaal, with its tributaries the Modder and Hartz, are the next in importance, followed on the right hand by the Hygab and Molapo. Of the affluents that feed the main river on its southern or left bank, the Kraai[2] and the Stormberg Spruit drain the north-east; the Zeekoe,[3] Brak,[4] and Ongars rivers the Central Upper Karroo; and the Hartebeest, with the Olifant's,[5] Zak, and Great Riet[6] rivers the north-western districts.

It is in this region that the largest colonial irrigation-work has been completed, Van Wyk's Vlei, a reservoir which, when full,

[1] From Kaffir, Nciba.

[2] Dutch = crow.

[3] Dutch = hippopotamus.

[4] Dutch = salt.

[5] Dutch = elephant.

[6] Dutch = reed.

will contain 35,000 millions of gallons, and the water of which will cover a surface-area of nineteen square miles at a depth of ten feet.

The districts of Namaqualand, Calvinia, Clanwilliam, Piquetberg supply the water for the Buffels[1] River, Zwart Doorn[2] River, Olifant's River, with its tributaries the Kromme,[3] Hantam's, Doorn, and Verloren[4] River; whilst Malmesbury claims almost the entire course of the Berg[5] River, one of the few navigable streams. All these rivers flow into the South Atlantic Ocean.

Along the southern coast the first important stream of fresh water met with east of Cape Agulhas is the Breede[6] River. Then comes the Gouritz, a name given to the lower reaches of a river containing the combined waters of the Groote,[7] Touws, Gamka,[8] Dwyka, and Olifant's rivers. The Gamka and Dwyka rise on the slopes of the Nieuw[9]-veld Mountains, traverse the Karroo proper, and, bursting through the Zwartberg, receive the waters of the Olifant's River, which irrigates the fertile valleys of Oudtshoorn, whilst the Touws and Groote rivers fulfil the same functions for the divisions on the right or western bank. The Gamtoos is the next important watercourse, and the Sunday River, which rises in the Sneeuwbergen, close to Graaff-Reinet, and, in a course of about 300 miles, drains the divisions of Graaff-Reinet, Aberdeen, Jansenville, and Uitenhage. The remaining rivers water the south-eastern area, namely, the Kowie,[10] Great Fish, Keiskamma,[11] Buffalo, Great Kei[12] (with the Zwart[13] Kei), Indwe, Bashee, Umtata, St. John's (with the Tzitza), and the Umtamvuna rivers.

For purposes of government the Colony is mapped out in "divisions," corresponding to English shires or counties. For purposes of parliamentary representation and the electoral return of members to the Upper House or Legislative Council, it is divided into eight electoral "circles;" and for the return of members of the House of Assembly, into thirty-seven electoral "divisions."

---

[1] Dutch = Buffalo River.

[2] Dutch = blackthorn.

[3] Dutch = crooked.

[4] Dutch = lost.

[5] Dutch = mountain.

[6] Dutch = broad.

[7] Dutch = great.

[8] A Hottentot word.

[9] Dutch = new.

[10] From Hottentot, Cowa.

[11] From Hottentot, Xesixama.

[12] Kaffir, Nciba.

[13] Dutch = black.

TOWNS AND VILLAGES.

1. Seaports and Towns of the Coast Districts.—CAPE TOWN, the metropolis of Cape Colony, had, with its suburbs, a population at the census of 1891 of nearly 85,000. Lying between the waters of Table Bay and the foot of Table Mountain, flanked on either side by the Lion's Head and the Devil's Peak, its situation is magnificent. The city is laid out according to the principles of its Dutch builders. The main streets run from the mountain to the sea, and are intersected by others at right angles.

The chief thoroughfare is Adderley Street, which in appearance will compare creditably with that of any English town of the same size. Here are the Standard Bank (a fine structure in the Italian style, with an imposing portico), many large shops, the Railway terminus, the Commercial Exchange, the Supreme Court, &c., and the fine pile of buildings in which the City Club is housed. St. George's Street, running parallel to Adderley Street, is the headquarters of the principal merchants, and contains the offices of the chief newspapers of the city. At the top of this street stands St. George's Cathedral. St. Mary's Cathedral, the Dutch Reformed, the Wesleyan (a very handsome building), the German Lutheran, and the Lutheran churches, also a fine Synagogue, are the principal ecclesiastical structures in Cape Town, the See of the Anglican (Metropolitan) and Roman Catholic bishops. The Mohammedan mosques, of which there are several, have no pretensions to architectural beauty. At the top of Adderley Street is the magnificent avenue of oaks, a favourite promenade (originally planted by the early Dutch settlers), leading up to Government House, the official residence of the Governor of the Colony and High Commissioner, the Sovereign's representative in South Africa. In this portion of the town (known as the Government Gardens) stand the Public Library and Museum, a fine-looking building containing priceless literary treasures, munificently bestowed by a former Governor, Sir George Grey, whose statue, in the Botanical Gardens, stands immediately in front of the portico of the structure with which his name is inseparably connected. On the opposite side of the Government Avenue are the new Houses of Parliament, the largest and best-finished building not only in Cape Town, but in the whole of the Colony, and superbly fitted up and furnished throughout. Its basement (of the splendid granite from the Paarl) is occupied as offices by the Colonial Secretary's department, and as storerooms for the Colonial archives, &c. In the grounds, which are beautifully kept, there has recently been erected a very handsome statue of Her Majesty. The other noticeable buildings are the Old Town-House (with a quaint, portico-like porch and a balcony upon it); the Castle, an antique pentagonal fort, more than 200 years old, but absolutely useless for defensive purposes; the Barracks, which afford accommodation for part of the Imperial garrison; the Public Buildings, an old, ugly, flat-roofed structure; the South African College, in the Government Gardens (the oldest of the Colonial Colleges); the New Somerset Hospital, at Green Point, facing the bay; and magnificent docks, which will admit the large steamers carrying on the Anglo-Colonial trade, as well as those vessels which, on the voyage to Australia and New Zealand, call at the port to coal.

To protect the city against hostile attacks, the defence-works have rapidly been pushed forward. A chain of forts, some of them armed with very heavy ordnance, extends from Green Point to Woodstock, along the shores of Table Bay.

The Colonial Railway trunk-line starts from the metropolis.

The suburbs of the eastern sides of Table Mountain, the slopes of which

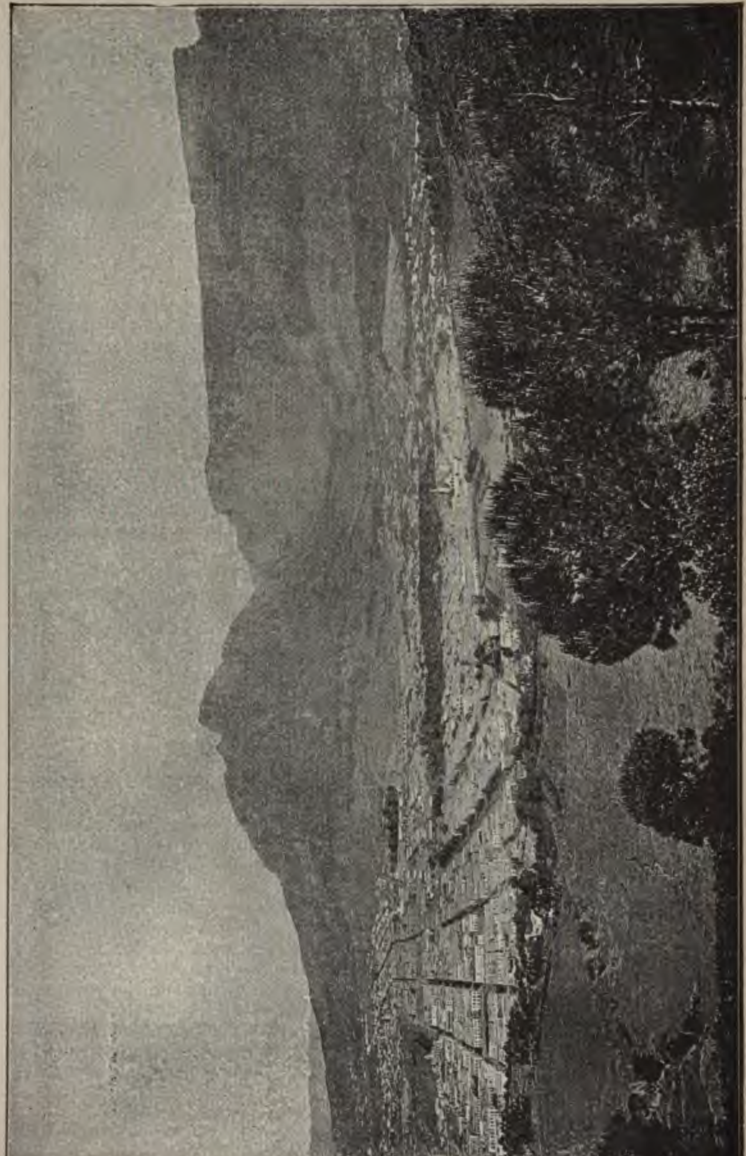


FIG. 22.—CAPE TOWN.

are beautifully wooded, are among the most delightful places of residence in South Africa. The pleasant villages of **Mowbray** (near which is the Royal Observatory, one of the most famous in the world), **Rosebank, Rondebosch** (where the Diocesan College is situated), **Claremont, Wynberg**, &c., which are all connected by rail with the city, are adorned by many charming villas, country-houses, and old Dutch mansions.

The Cape peninsula is joined to the continent by a narrow isthmus separating Table Bay from False Bay, and the salubrity of the district is unsurpassed. Mountain, dale, sea, and plain afford views such as the eye rests on with pleasure and the memory cherishes with gratitude.

The suburbs known as **Green Point** and **Sea Point** lie in the opposite direction, and contain many large and handsome residences. Tram and rail, the latter in process of construction, provide ready means of communication with the town.

At the southern end of the peninsula, twenty-two miles from Cape Town, is **Simon's Town**, a quaint, old-fashioned, English-looking place, the South African naval station, and strongly fortified. The view across the bay from the Cemetery Battery is one of the finest in South Africa. Between this pretty town and Wynberg (the largest of the suburbs, and noted for its mild climate) is the fishing-village of **Kalk**[1] **Bay**, a celebrated seaside summer watering-place. **Muizenberg**, a hamlet half a mile from Kalk Bay, is of historic interest, having been the scene of the battle between the Dutch and English preparatory to the first cession of the Colony; whilst **Blaauwberg**,[2] which saw the action that led to the second surrender, is on the shores of Table Bay, opposite Cape Town.

Mossel[3] **Bay** (formerly called Aliwal South), a town in the division of the same name, half-way between Cape Town and Port Elizabeth, has an excellent harbour, a lighthouse of the first class, and is well adapted, from its geographical position, to supply the wants of the south-west coast-divisions, and to serve as an outlet for their products.

Port Elizabeth,[4] built on the sandy shores of Algoa Bay, is the most important commercial town of Cape Colony. Harbour works are in course of construction, but it has no docks. The bay is an open roadstead, affording a good anchorage, protected from the winterly north-west gales. The island of **St. Croix**[5] is that on which Diaz landed and placed a cross at the time of his discovery of the passage around the celebrated "Cape of Storms." "Little Bess," by which name "the Liverpool of the Cape" is generally known, has a population of 23,000. It is now the most important railway terminus on the coast of South Africa. One line brings it into connection at De Aar junction with the railway from Cape Town to Kimberley and Bulawayo, and another connects it even more directly with Bloemfontein, Johannesburg, and Pretoria, while short lines and branch lines bring it into communication with other parts of South Africa. It is specially well situated for exporting the wool of the Colony, about two-thirds of which is despatched from this port. Nothing but improved shipping accommodation is wanted to ensure the rapid growth of the town and port. The town has an appearance worthy of its importance, especially the residential portion known as "The Hill," which is supplied with water from Van Staden's River, twenty-seven miles distant.

The Kowie or **Port Alfred** (forty miles away), is the harbour of Grahamstown. It is not of much importance commercially, but is greatly frequented as a seaside resort in summer. It lies about midway between Port Elizabeth and East London, the latter being the commercial entrepôt of the east.

---

[1] Dutch = chalk, lime.

[2] Dutch = Blue Mountain.

[3] Dutch = mussel. Oysters are obtained here.

[4] Named after the wife of Governor Sir R. Donkin.

[5] French = Holy Cross.

The important town of **East London** (6,900 inhabitants) is situated on the Buffalo River, which, like all other South African rivers, is troubled with a "bar." The harbour has, however, been greatly improved, and the bar can be crossed by vessels drawing 21 feet, while inside the bar there is a water area of 100 acres, affording ample accommodation for large steamers. This also is a great wool port, which has profited greatly by railway extensions. It is connected with Pretoria by a line passing through **King William's Town**,[1] **Queenstown**, the coal-mining district of the Cape Colony, and **Dordrecht**, and joining the line from Port Elizabeth, near Springtown, in the Orange Free State. Aliwal[2] North, on the Orange River, the original terminus of this railway, must now be regarded as standing on a branch line.

St. John's River, where there is a settlement, is the port of Pondoland, and the last harbour of any consequence on the south-east coast of the Colony.

The **inland** villages of the coast-belt are neither large nor numerous. Like all those of the western and midland districts, they are laid out on one plan. the Dutch one, the streets cutting at right angles, houses with flat roofs, a public square, a market-place, with the Dutch Reformed Church as the most prominent object, a pile of buildings devoted to public offices, containing the resident magistrate's court, the civil commissioner's office, post, telegraph, divisional, and municipal council's offices, with a public library, a police-station, and lock-up. These constitute the essentials of a South African village. **Stellenbosch**,[3] noted for its fine avenues of oak trees, its schools and colleges (Victoria College and the Theological Seminary), is the chief town of a fertile fruit- and wine-growing district west of the Drakenstein Mountains. Viticulture is the principal occupation, and the making of wine and distilling of brandy the main industry. **The Paarl**,[4] with a population of 7,700, is a village of one street, seven miles in length. This place is the centre of the wine industry of the western province, and also carries on a large business in cart and waggon building. **Somerset West** and the **Strand** (the latter a little fishing-village on the shores of False Bay, almost opposite Kalk Bay) are favourite seaside resorts. **Caledon**,[5] at the foot of the Zonder Einde Mountain, nestling directly up against a solitary hill known as the Zwartberg, is in considerable repute as a Colonial Matlock. There are valuable hot mineral springs here, and baths of the waters are recommended by the medical faculty in cases of rheumatism and skin-diseases. **Swellendam**[6] is a pretty little spot on the Breede[7] River, with a population of 2,000. **Heidelberg** supplies some good tobacco, while **Riversdale** is an important centre for ostrich-farming. **George**, a beautiful village of about the same population as that of Swellendam, lies in the centre of a rich and fertile district, on the outskirts of the great Knysna Forest. **Knysna**[8] itself boasts of a fine land-locked harbour, the entrance rivalling in miniature the famous "gates" of St. John, and in the vicinity are the Millwood gold-fields. **Uitenhage**, twenty miles from Port Elizabeth (5,300 inhabitants), is noted for its wool-washeries, its gardens, flowers and fruit. There are some large railway workshops here. **Malmesbury**, in the north-west, is the chief centre of the grain-producing districts. The cereals are shipped direct to Cape Town, the Berg River being the highway to the sea. Some of the most noted colonial stud-farms are here, and some mineral springs, which are much frequented. **Piquetberg**, farther north, is a small village on the great north-west road

---

[1] Named after King William IV.

[2] Named after the scene of Sir H. Smith's victory in India.

[3] Named after Commander Van der Stell.

[4] Dutch = pearl.

[5] Named after Earl of Caledon.

[6] Named after Governor Swellengrebel.

[7] Dutch = broad.

[8] From Hottentot, Nqeisnqua.

2. **Towns of the First Plateau.**—The inhabitants of nearly all the towns of this area, from Piquetberg to Oudtshoorn, are occupied in the wine industry. **Oudtshoorn**[1] furnishes tobacco, ostrich-feathers, and fruit as well as grain grows abundantly. There are mineral springs at **Clanwilliam**, **Worcester**, **Goudini**, **Robertson**, and **Montagu**. The spring at **Brand Vlei** is specially celebrated. **Worcester** (5,400 inhabitants) is laid out in fine broad streets, with water running along the furrows on either hand. About twenty miles distant is the famous **Hex River Mountain**, up which the main line of railway winds before reaching the Karroo. The scenery of the mountains is bold and grand, and that of the well-watered and fertile valleys is romantic and charming. To the north-west of this pass the old post-road leads through the mountains at **Ceres**.

Grahamstown[2] (10,500 inhabitants) is the chief city of the first plateau. It is the see of two bishops, the Anglican and the Roman Catholic, the seat of the Eastern Districts Court, and an educational centre. St. Andrew's College and many public and private schools are here. It possesses the first cloth-factory erected in the Colony, which produces excellent blankets and tweeds of colonial wool. The city has an historical record second to none in the Colony, whether as the visible sign of the perseverance and pluck of the settlers of 1820, or on account of its heroic defence during one of the Kaffir wars. The Albany Museum, the Anglican Cathedral, the Hospital, the Provincial Lunatic Asylum, and the Memorial Hall are some of its most noticeable buildings; while its gardens, both public and private, and their floral productions, are known throughout the length and breadth of the Colony.

3. **Towns of the Middle Plateau.**—**Beaufort West**, lying in the midst of the Karroo Veld, at the foot of the Nieuwveld Mountains, is known as the "Queen of the Karroo," and has the reputation of having a climate particularly soothing to sufferers from chest-complaints. Thanks to the irrigation-works carried on there with conspicuous success, a large area of land has been brought under cultivation. The town partakes of the general character already described, and is the great centre of the wool trade. From the extensive sheep-runs of the surrounding districts the farmers bring their produce into the village to sell it to the shopkeepers, who in turn forward it to Cape Town for shipment to England.

Prince Albert is the chief village of that fertile belt of land stretching along the Zwartberg Range, at the south of the Karroo, of which mention has been made in preceding pages. **Aberdeen** and **Willowmore** are smaller places, situated amidst Karroo veld. **Graaff Reinet**[3] (5,900 inhabitants), the "Gem of the Desert," lies to the east of the Sunday River, at its head-waters. It is one of the oldest towns in the Colony, situated on a flat piece of ground, a bend of the Sunday River, which forms, as it were, the outer edge of a fan, with the mountains closing in on either side. Standing like a sentinel on guard at its entrance are the bold masses of Spandau's Kop, with the extraordinary "Valley of Desolation" on the west, the serrated edges of the Tandjesberg[4] bounding the view on the

---

[1] Named after Baron v. Rheede v. Oudtshoorn.

[2] Named after Colonel Graham.

[3] Named after Governor Van de Graaff and his wife Reinet.

[4] Dutch = little tooth.

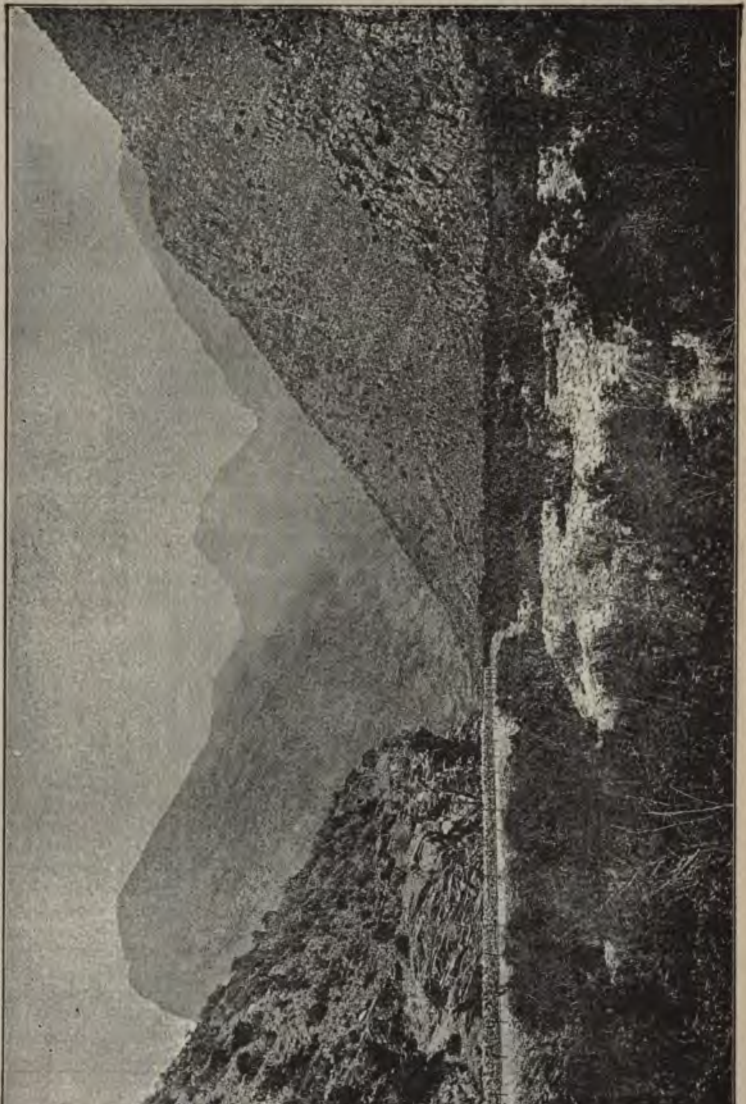


FIG. 23.—MITCHELL'S PASS, NEAR CERES.

east. The Dutch church is one of the finest in the Colony, and there are a handsome English one, some well-cared-for botanical gardens, the excellently equipped "Midland Hospital," and a very fine library. This town is noted for its gardens, its vineyards, and its choice fruit. It is one of the old-fashioned Colonial-Dutch towns, where the modern element has, as yet, made few inroads. Still, it is the terminus of one of the railway lines from Port Elizabeth, which will ere long doubtless be continued. Close to Graaff-Reinet, on the farm "Kruidfontein," are two mineral springs much resorted to for rheumatic affections.

Between Graaff-Reinet and Somerset East, a small spur from the Tandjesberg, running south and known as Bruintjes Hoogte, seems to form the dividing-line between the Karroo veld and that of the eastern districts. Standing on the summit of this ridge, the views east and west differ completely. Towards the rising sun the country is seen to be covered with innumerable ant-heaps, rising up like gigantic mole-hills; the colour of the soil has changed from silvery sand to reddish-brown; there is more bush in the plain, not merely a few willows and acacias along the river-courses, as in the Karroo, and the slopes of the mountains are picturesquely wooded. At the foot of the great range, nestling under the folds of the verdant Boschberg, lies **Somerset East**,[1] a beautiful little village, whose finest building is the public school, Gill College. Passing by **Bedford**, **Adelaide**, through **Alice** (at the foot of the Amatolas, a range that has figured in all Kaffir wars as the mountain-fastness of our dusky foes), past **Lovedale** (the large Native Educational Institution), the traveller reaches

King William's Town (7,200 inhabitants), the capital of the Eastern Districts, with a large frontier Kaffir trade. Among its buildings the Town-Hall and the Grey Hospital[2] (where natives are treated free of charge) are the most important. There are, besides, many fine churches, private dwellings, and warehouses. The town stretches along the banks of the Buffalo, which, passing through the Botanic Gardens, well worth a visit, flows, as already described, into the sea at East London. At "King," as its inhabitants call it, and in the villages in the neighbourhood, is a large number of German settlers, frugal, hard-working, industrious tillers of the soil, who by their labours supply the market with excellent fruit and vegetables. This town is also the headquarters of the colonial military forces. The great Perie Bush, another extensive Crown forest, running along the Amatolas, was the spot where the Kaffir chief Sandilli made his last stand during the Gaika war of 1878.

4. **Towns of the Upper Plateau.**—**O'okiep**, situated in the extreme West, is the capital of the copper-mining settlement, and the most important in Namaqualand, and connected by rail with **Port Nolloth**, the harbour whence the ore is shipped.

The country between the Orange River and north of **Clanwilliam** and **Carnarvon**, just skirting **Fraserburg** (with its sulphur springs), and running parallel to the 22nd degree of longitude east, is the most arid in the Colony. Horse and cattle breeding are carried on in the districts, which bear the same names as their respective capitals, the above three towns. **Murraysburg, Victoria West, Hopetown, Richmond, Middelburg, Hanover,** are all small villages of this vast area. **Colesberg**,[3] close to the Orange River, deserves special mention as being the terminus of the Colonial North-Eastern Railway system, where the line joins that of the Free State.

---

[1] Named after Governor Lord Charles Somerset.

[2] Established to counteract the evil influence of Kaffir "witch-doctors."

[3] Named after Governor Sir Lowry Cole.

Cradock,[1] situated on the banks of the Great Fish River (spanned by a fine bridge), is a town of some importance in the north-eastern districts, much celebrated as a health resort, and containing a very handsome Dutch church.

Queenstown is situated beyond the Fish River, and between the Amatolas and the Stormberg ranges, where the winters are cold and snow sometimes falls in the village itself, snow being a common sight upon the surrounding mountains. **Dordrecht** lies between this town and the Orange River; and at a short distance are **Cyphergat, Indwe,** and **Molteno** (villages of the colonial coal-fields), **Burghersdorp,** and **Aliwal North,** the terminus of a railway line from East London.

Griqualand West, formerly a province, is now divided into four districts: Hay, Barkly, Kimberley, Herbert.

The most important town is **Kimberley**, with the adjacent **Beaconsfield.** Till about 1870 the ground on which Kimberley stands was barren veld. The discovery of diamonds attracted thither a vast number of people from all parts of the world, including nearly every nationality, who resided in tents. Subsequently canvas made way for corrugated iron, this in turn to bricks and mortar, until at present there is in the Diamond Capital a permanently settled mining community of upwards of 40,000 in the two towns.[2] All the Banks have branches here, and Kimberley is at the terminus of the colonial main railway line and the starting-point of that now running to Bechuanaland. The High Court sits here; there is a commodious Town-Hall, and the excellent Carnarvon Hospital affords medical relief and accommodation for the sick of all classes. The town is lighted throughout by electricity, and water is brought into private houses by pipes laid from the Vaal River. Apart from the output of diamonds, which has assumed such enormous dimensions, Kimberley has a large trade with the neighbouring Free State, with the Transvaal and Bechuanaland. In the war of 1899–1900 between the Boer republics and Great Britain it was besieged by the Boers almost from the beginning of the war, but it held out successfully till it was relieved on the 15th of February 1900.

Barkly[3] **West** is a small village on the Vaal, opposite **Pniel.** A fine bridge spans the river, here of considerable width. At Barkly West, diamond-searching was first carried on in the river-reaches; but its glory has been completely dimmed by its younger and more prosperous neighbour, Kimberley. With the exception of **Hay,** or **Griqua Town,** which is a magistracy, all the other places are unimportant.

Pondoland, the territory immediately to the east of the Kei River, and containing the fine harbour of **St. John's,** at the mouth of the St. John's River or Umzimvubu, was annexed to the Cape Colony in March 1894.

Bechuanaland. See p. 117.

Islands.—There are no large islands off the coast of Cape Colony, but a few small ones are met with off the west and south coasts. **Mercury,**

---

[1] Named after Governor Sir John Cradock.

[2] At the census of 1891, 29,000 in Kimberley, 10,500 in Beaconsfield.

[3] Named after Governor Sir H. Barkly.

Ichaboe, and **Possession Island** are noted for guano deposits. **Dassen**[1] **Island**, a low-lying sandy stretch, has earned an unenviable notoriety as the scene of many wrecks. **Robben**[2] **Island**, in Table Bay, contains a leper hospital and a lighthouse. **St. Croix**, already mentioned, and **Bird Islands** (in Algoa Bay) complete the number.

DEPENDENCIES.

1. **Kaffirland.**—The country beyond the Kei River, and bounded by the Bashee—a beautiful, fertile, grassy country containing no European towns or villages of any importance. There are innumerable Kaffir "kraals" throughout the country, the native population being very dense. It comprises **Fingoland**, **Gcalekaland**, the **Idutywa Reserve**, **Griqualand East**, and **Tembuland**, all dependencies of Cape Colony, administered by magistrates appointed by the Colonial Government.

Pondoland is now an integral part of the Cape Colony.

The chief magistrate of Griqualand East resides at **Kokstad**, the chief magistrate of Tembuland at Umtata, and various magistrates and assistant-magistrates are located at other centres.

Mission stations and schools are scattered over the country.

The natives are engaged in cattle-breeding, sheep-farming, and grain-growing, maize and millet being the principal cereals produced.

2. **Walvisch Bay.**—Cape Colony has a somewhat distant dependency in **Walvisch**[3] **Bay** (lat. 23° S.), the "front door" of Damaraland, which is the only serviceable harbour on the west coast of South Africa north of the Orange River.

NATAL.

The Colony of Natal, including Zululand, annexed in 1898, is about 33,000 square miles in extent, and contains about 700,000 inhabitants, Europeans, Indian coolies, and Kaffirs. It stretches between latitudes 27½° and 31° south, with its northern and southern extremities almost cutting the meridian of 30° east.

Terra Natalis, the present Colony of Natal, was discovered on Christmas day 1497—hence its name—by Vasco da Gama. The Portuguese, however, made no use of the discovery. The Dutch East India Company once proposed to form a settlement, but the idea came to nothing.

Two British officers, Lieutenants Farewell and King, in 1823 advocated a colonisation scheme; but the Cape Government refused to sanction the undertaking. This country has been a

---

[1] Dutch = rock-rabbit. [2] Dutch = seal. [3] Dutch = whale.

British possession since 1843; how it became so, the following paragraph will tell.

Like those of the neighbouring Republics, Natal's first European inhabitants were immigrants from the "Old Colony;" and the narrative of their sufferings, hardships, and bravery forms one of the most interesting chapters of colonial history. The causes that led to their expatriating themselves are recounted in the section dealing with the Orange Free State. On crossing the Drakensberg Mountains, they found the country under the sway of that terrible barbarian Dingaan, Chaka's brother, who, after lulling their suspicions, fell treacherously upon them, and massacred a party sent to arrange the terms on which they were to occupy the rolling pasture-lands. Having succeeded beyond his anticipation in this bloody stratagem, he attacked the Boer camps and butchered the immigrants indiscriminately, sparing neither old nor young. It was on occasions such as these that the heroic deeds of the little band of whites, of women and maidens as well as of mature men and stripling youths, glowed with a brightness that the lapse of years has been unable to dim. Chastened by misfortune, and grown wiser in the bitter school of practical experience, the farmers collected their forces, and advancing cautiously against the Zulus, defeated them in a terrific conflict, and slew 3,000 of them. Subsequently Panda revolted against his brother, and formed an alliance with the immigrants, who made a final expedition and completely routed Dingaan's forces. Thereupon he fled, and was afterwards killed by a hostile tribe. Once masters of the country, the farmers settled down, and proceeded to establish a government. The news of the conflict between Europeans and natives coming to the notice of the Cape authorities, Governor Sir George Napier, not approving of the conduct of the immigrants, despatched a small force to Natal. The farmers construed into an abandonment of the territory by England the early withdrawal of these troops; but the action of the Boers again called for intervention on the part of the Governor of the Cape, and a force under Captain Smith was sent to take possession of the country in the name of Queen Victoria. The farmers attacked the little detachment, and the troops were obliged to act on the defensive. On the arrival of reinforcements, however, the enemy were quickly dispersed, and on the 5th July 1842 the settlers submitted to the Queen's authority. On the 12th May 1843 Natal was proclaimed British territory.

In 1893 responsible Government was granted to the Colony, and there is now a Legislative Council of eleven members nominated by the Governor in Council, and a Legislative Assembly of thirty-seven members elected by popular vote. There is a property qualification for the franchise, but by an Act passed in 1894, only those Asiatics who were already on the voter's roll at that date are to have the right to vote.

The surface of Natal bears a striking resemblance to the general features of the Cape Colony, the land rising in three distinct terraces from the sea to the foot of the Drakensberg, the backbone of the country. The first terrace is about fifteen miles across from the sea; the second is thirty-five miles broad; and the upper extends from about Howick to the foot of the "Berg." The chain is, on an average, 7,000 feet above sea-level, and the terrace at the foot of it is at an elevation of from 3,000 to 4,000 feet. These mountains are the continuation of the true mountain range of Cape Colony, and unite with the Quathlamba (among whose towering peaks we notice the Giant's Head and Cathkin Peak), and separate Natal from Basutoland and the Orange Free State.

The Buffalo[1] and Tugela rivers define the borders of the Colony towards the South African Republic and Zululand, and the Umtamvuna and Umzimkulu rivers form the separating line towards the dependencies of Cape Colony.

Jutting out from the main chain of the Drakensberg are two chains running across the colony to the eastward—the **Biggarsberg** and the **Mooi**[2] **River** heights.

The peculiar conformation of the country, its terraces and rolling surface, are due more to the action of water than to Plutonic forces. This action is clearly traceable in the erosion of the high-lying strata, and in the subsequent formation of the low-lying coast-lands, the result of the combined influence of winds and waves.

The geological formation of the great dividing range is granitic; gneiss, mica-slate, clay-slate, and crystalline limestone accompanying it. Following the old red sandstone occurs the singular "boulder-clay," known also as "clay-stone porphyry." This boulder-clay is a legacy from the ice period, the portions of many kinds of rocks which it contains having been brought down by the glaciers. In Natal the Dicynodon is found as a fossil among the coal-measures, which do not contain any of the organic remains met with in similar measures in Europe. The bottom of the coal-bearing stratum is composed of "Pietermaritzburg shale." The great coal-area lies on both sides of the Biggarsberg, though there are other localities in which coal is found. The seams are everywhere pierced by greenstone, the presence of which can be traced from the rocky sea-shore to the highest summits of the Drakensberg. The Cretaceous era has left a small trace of its activity in Alfred County, the portion of the country between the Umzimkulu and Umtamvuna rivers. Tertiary and Post-Tertiary formations, the rocks of the Cainozoic periods, with their surface-deposits of sand, &c., may be found in many parts of the Colony.

The coast-line is uniform and unbroken. There is only one harbour along the coast—Port Natal.

The **rivers** of the Colony are numerous, and some are fine streams. Owing, however, to the configuration of the land, they are unnavigable to any distance; and after heavy rains, when their volume of water is inordinately swelled, they are changed from small streams to raging torrents. At such times they are said to be "up," and become impassable. The transport-rider or the traveller arriving on the bank of a river in flood must "outspan" and wait for the river to "go down."

---

[1] In Zulu, the Umzinyati.

[2] Dutch = pretty.

The **Tugela**[1] is the most important river in Natal. Rising on the eastern slopes of the Mont-aux-Sources, its basin claims the greater portion of the Colony. Its general direction, for the first part of its course, is from west to east, but afterwards, taking the inevitable bend, it runs south, and throws itself into the Indian Ocean. The Buffalo and Sunday rivers on the left, the Mooi and Bushman rivers on the right bank, are its principal tributaries.

Of the other rivers, the Umzimkulu[2] and Umkomanzi drain the southern part of the country, the Umgeni and Umlazi the south-central, and the Umvoti the country between the capital and the Tugela. The Falls of the Umgeni (280 feet) and those of the Tugela (still higher) are the principal natural curiosities of Natal.

The **climate** is greatly influenced by the conformation of the land. In the coast districts it is hot and moist, but the high temperature is alleviated by frequent and often violent thunderstorms and copious showers in summer. In the highlands the air is bracing and pure, especially that of the capital, which is wonderfully healing to weak or diseased lungs. In the uplands winter brings a little snow and ice, and the air is chilly. This region is also subject to hot winds. The intermediate table-land is neither so hot as the coast district, nor so cold as that of the highlands.

The Colony is certainly salubrious, and, like the Cape, is a pleasant home for those suffering from chest complaints.

For reasons previously explained, Natal receives more rain, area for area, than Cape Colony does; but here also the rainfall is greater along the coast than inland. The constant thunderstorms, however, make up in these districts for the lack of moisture in the winds that blow from the sea.

The climate naturally affects the **productions** of the country, which vary with the locality. In the warm and humid coast-region sugar is extensively cultivated, and coffee, tea (which is establishing a good reputation for itself), arrowroot of good quality, tobacco of agreeable flavour, all these grow readily and luxuriantly.

In the semi-tropical district delicious fruits are abundant. There bananas, plantains, custard-apples, grenadillas, limes, man-goes, native plums, and tamarinds all grow in abundance. In the midlands are guavas, figs, oranges, lemons, loquats, pomegranates, mulberries, grapes, melons, &c. The highlands are more suitable for the production of northern fruits, and hence yield apples, gooseberries, plums, pears, &c.

---

[1] Kaffir = startling.

[2] The prefix *Um* is Zulu.

Among cereals, "mealies" are extensively cultivated, and are almost the only kind of grain produced in large quantities; for though other corn can be grown, it does not pay.

Natal has great resources as a pastoral country; but, unfortunately, cattle-diseases are virulent and by no means infrequent. Horse-sickness is a terrible scourge, and cattle-sickness is no less to be dreaded. These visitations, however, are not confined to Natal. Cattle exist in large numbers, sheep find succulent pasture in the upper districts, and wool forms the principal item in the table of exports. The Angora-goat has been acclimatised, and mohair-growing now ranks as a staple industry.

The woods of Natal are similar to those of Cape Colony. The Crown forests are now being carefully preserved, the indiscriminate felling of timber, particularly of young trees, by the Kaffirs, for purposes of hut-building, having done incalculable damage in former years.

The geographical position of the Colony, which for many years seemed a bar to its progress, has, since the discovery of gold in the Transvaal, been the very factor to which it owes its present prosperity. The railway traverses the country from one end to the other, with branch lines along the coast to Verulam; and soon the towering summits of the Drakensberg will be crossed by an iron way, and the shrill whistle of the steam-engine will reverberate among the mountain fastnesses, when the line now in course of construction has reached Harrismith in the Free State.

Natal possesses in its **coal-fields** a vast source of wealth. This mineral is found over extensive areas, and is of a good quality, which seems to improve the deeper the mines are worked. This excellent coal is not alone largely used on the Natal railways, but has been tried with successful results by ocean-steamers, and the Cape Railway authorities are testing its value on their eastern line and comparing it with the Cape coal; while the Johannesburg gold-fields offer a ready market for the output. Iron ore is found near the coal, and, according to the opinion of competent judges, few colonies possess more resources for manufacturing iron than does Natal. Gold has been discovered in certain localities. Such conditions, coupled with the energy, enterprise, and business capacity of the colonists, should ensure a bright future for Natal, and convert the teeming hordes of indolent Kaffirs into industrious members of the community.

For political and administrative purposes the Colony is divided into ten districts, including the city of Maritzburg and the borough of Durban, and eight counties.

Towns and Villages of the Coast-Lands.—DURBAN[1] (39,000 inhabitants), the leading commercial centre of the Colony, its seaport and largest town, is situated at the head of the Bay of Natal, a land-locked harbour, at the southern end of which rises "The Bluff" with its lighthouse. Extensive works are in progress to obliterate the "bar" that blocks the entrance, and the efforts already made in this direction have been highly successful. With the sea in front, the well-wooded "Berea" (a plateau overlooking the town, connected with it by tram, and adorned with pretty villas, delightful bungalows, and handsome mansions) in rear, its tidily kept, clean, and gas-lighted thoroughfares, containing many fine buildings, especially the Town-Hall, Durban is one of the prettiest, most thriving, and prosperous towns of South Africa.

To the north of the port, connected with it by rail, lies **Verulam**,[2] the chief town of the sugar and tea producing districts, through which the main road passes, *viâ* **Stanger**, to the Lower Tugela Drift. It was by this road that the lower or coast column, commanded by Colonel Pearson (which was afterward locked up in **Etchowe**), entered Zululand in the war of 1879. Fifteen miles from Durban is **Pinetown** (the "most healthy spot in the British Empire"), a world-renowned sanitarium for consumptives; and about an hour's ride from the station brings the visitor to the famous Trappist establishment on **Marion Hill**, where the Brothers are devoting themselves to training and instructing the Kaffirs, not only in religious subjects, but also in various useful and profitable crafts. The port draws its water-supply from the **Umbilo Waterworks**, a couple of miles from **Pinetown**.

In Afred county there is at **Marburg** a large tract of country occupied by some Norwegian immigrants, who were located thereon in 1882. Similar settlements have been formed in other parts of the Colony.

Towns of the Middle Plateau.—PIETERMARITZBURG[3] (usually abbreviated by colonists into "Maritzburg"), the capital, the seat of Government, the residence of the Governor, the seat of the Supreme Court, and the military headquarters of Natal, is a town with 20,000 inhabitants, named after two leaders of the Voortrekkers (pioneers), Pieter Retief and Gert Maritz, originally laid out in fulfilment of a vow to Almighty God "that they [the emigrant Boers] would raise a house to the memory of His great Name, wherever it should please Him." The country around the city is exceedingly pretty. Maritzburg is well built, with wide streets, along the sides of which run watercourses fringed with various kinds of trees. The Government buildings form the most prominent architectural feature, and several churches, handsome shops, the college, a theatre. Masonic temples, and picturesque residences with gardens laid out in a charming manner, add to the beauty of this inland town. There is also a fine public park with a well-kept "drive."

---

[1] Named after Sir B. D'Urban. The Zulu name is E-tekwini.

[2] The Zulu name is Um-pikanini.

[3] Zulu name, Umgungundhlovo.

Richmond, a small village, is the centre of a splendid district famous for its agricultural and farming produce. **Greytown**, the chief township of the Umvoti county, is noted for its excellent sheep-runs.

Towns and Villages of the Upper Plateau.—WEENEN ("the place of weeping"), the pathetic name of the township which has risen on the site of the terrific conflict between the immigrant Boers and Dingaan, is the principal town of a great pastoral district. **Estcourt** and **Colenso** (named after the late Bishop), through which the railway passes, are townships of minor importance on the main line to **Ladysmith**,[1] for some time the terminus of the Natal line, a thriving up-country place with a large "over-berg" trade. A considerable British force was invested by the Boers at Ladysmith in October 1899, and Colenso was on the 15th December the scene of a disastrous British reverse in an attempt to relieve it; but the relief was ultimately effected on the 28th of February 1900. Farther to the north lies **Newcastle**, the capital of the coal district, 247 miles from Port Natal. Close by are the fatal battlefields of **Ingogo**, **Laing's Nek**, and **Amajuba** ("the mount of pigeons"); and north-east of Ladysmith is **Helpmakaar** ("aid one another"), immediately on the Natal side of the Tugela, opposite **Rorke's Drift**, which is famous for the heroic defence of Chard and Bromehead after the disastrous day at Isandhlwana ("the place of the little hand"), 22nd January 1879.

Not far from the border, half-way between Helpmakaar and Newcastle, is **Dundee**, around which numerous coal-deposits are found. The climate of this district is remarkably fine.

BECHUANALAND.

Though now partly included in Cape Colony, this vast territory, extending northwards to 22° S., deserves separate treatment on account of its being inhabited mainly by Bechuana tribes. It became British in 1885, and in 1895 the southern portion was annexed to the Cape Colony.

COLONIAL BECHUANALAND.

This is a large territory, bounded on the north by the Ramatlabami Spruit and the Molapo River; on the west, by the meridian of 20° E.; on the east, by the Transvaal.

After leaving that part of Cape Colony known as Griqualand West, very few mountains are met with; the land is a high plateau stretching towards the confines of Great Namaqualand. "Kopjes" rise here and there; but, with the exception of the Monanjamabelè, the Kunanè, and Kuruman heights, the country is one gigantic high-lying plain. In some places, as far as the eye can reach, it is as flat as a billiard-table; in others, it is undulating like the English "downs."

---

[1] Named after the wife of Sir Harry Smith. Zulu name is U-nambili.

A remarkably pretty piece of country lies between the Sitlagoli and Maritzani rivers—an English park transplanted into South Africa. Large trees in full foliage, mimosas and camel-thorns, raise their tall stems in every direction, and all round them is spread a carpet of emerald-green grass. Amongst the branches of the trees are seen the large and wonderfully-built nests of sociable, and also of weaver birds, the latter so named from the extraordinary manner in which they weave their nests. Around Logaging the country is particularly romantic. The volcanic forces of Nature must have had full play here; for the rocks have been melted and contorted by the action of heat.

The **geology** of the country has not yet been scientifically studied, but appears to resemble that of the neighbouring States. Gold, both alluvial and in the reef, has been found in some localities.

The **flora** of Bechuanaland is like that of Cape Colony. The aloe and its relatives are here at home, and of course thrive splendidly. The beautiful lilies, the gladiolus, ixia, oxalis, are met with on every hand. The representatives of the Gramineæ are few; but the Compositæ, Ficoideæ, Euphorbiaceæ, and the different Pelargoniums are numerous. The beautiful Erica must not be forgotten, whose charming flowers brighten up the veld wherever the plant appears. The Hottentot-fig, much liked and sought after by Kaffirs and Hottentots, grows profusely in this country, as elsewhere, from Shoshong to Agulhas and from Cape Town to Delagoa Bay. The camel-thorn is here the most frequent among the plants which attain the height of trees. It is in great demand at Kimberley, where it is, or used to be, much in request for firing purposes. The wood is of two different colours, the heart-wood being blood red. There are few indigenous fruit-bearing trees.

The **fauna** is exceedingly rich, and most of the terrestrial animals enumerated on pp. 81–2 may be found in this country. The aasvogel, of the birds of prey, must take the prize as the most hideous and gluttonous. These birds, a kind of vulture, are often seen in the interior, and play the important parts of Nature's scavengers. As Commissioners of the Grand South African Board of Works, it must be admitted that they do their duty most efficiently.

The hydrography of the country is exceedingly simple. All the **rivers** flow into the Orange River, either mediately or immediately. The Ramatlabami, Sitlagoli, and Maritzani flow into the Molapo, which, in its lower reaches, is swelled by the waters of the Kuruman and the Moshowing, and then known as the Hygap. In the east the Hartz and Dry Hartz rivers run into the Vaal, which, in turn, discharges itself into the Orange River a little to the west of Hopetown (Cape Colony). Water on the surface is rare, but there is plenty to be had by sinking wells. It must be remarked that the natives have no idea of raising water to the surface by mechanical means. Their wells are like enormous funnels, down the sides of which they place the stems of trees, one stem resting in the fork of another. When they require water, a small detachment has to be sent out to go and fetch it. One man climbs down to the bottom of the well, and at each fork a man is stationed. The water is then passed up from the bottom to the top in calabashes.

The native Bechuana **tribes** resemble in many respects the Basutos. Many years ago they settled in these regions, driven from their homes by the warlike Zulus, who defeated them and forced them to flee.

The chief tribes are the **Batlapins** and the **Baralongs**, the former in the south and the latter in the north of the country. Their features are of the ordinary Kaffir type. They live in villages, called "kraals," many of considerable extent. Their houses are huts of grass fastened to a wooden framework, but with no pretence to architecture. The numberless ant-heaps to be seen all over the veld were doubtless their models.

The Bechuanas live mostly on milk and mealies; they seldom eat meat. Clothing is regarded as a luxury, and its adoption depends on the degree of latitude and longitude, the influence of European civilisation, the presence of a missionary, or some other predisposing circumstance. Their weapons consist of assegais, guns, and a kind of battle-axe, which reminds one forcibly of those used by the Crusaders.

The **climate** is magnificent. The atmosphere is bright, the sun hot during the day, and the air free from moisture. There is a marked difference in the temperature after the sun sets, and the nights are invariably cool. The winter, on account of the altitude, is cold; ice, which quickly melts during the day, being common.

This country is well suited for colonisation, and one of the finest in South Africa for cattle-breeding. Minerals exist, and, with proper development, the territory promises to have a prosperous future.

Towns.—The principal native villages are **Taungs**, the capital of the chief Mankoroane; **Kuruman**, the mission-station where Moffat laboured; and **Mafeking**, the most northerly town in the Colony, the residence of Montsioa. **Vryburg**,[1] the capital, the seat of Government, and the official residence of His Excellency the Administrator, is a town of mushroom growth. Previous to the arrival of the Bechuanaland Field Force, what houses there were—and they could be counted on one's fingers—were of canvas stretched over wooden frames. Now, brick, stone and galvanised iron are the common building materials. The town has an increasing trade, and the completion of the railway from Kimberley to Vryburg in 1891 marked the first stage of the Great Trans-South-African Trunk Line. The first view of Mafeking from the height of Madibi is exceedingly pretty. The native town is situated on both banks of the Molapo, and is almost hidden by trees. Each hut is surrounded by a clay wall, loopholed on every side, the mementoes of defence-works against the filibusters. There is a very neat church, built by the Royal Engineers, and a European town is springing up at some distance from the native village. The town had to undergo the most protracted siege endured by any town in the war of 1899–1900. It was invested at the very beginning of the war (October 1899), but held out gallantly till the siege was raised on the 18th of May 1900.

---

[1] Dutch = Freetown.

THE PROTECTORATE OF BECHUANALAND.

The Protectorate of Bechuanaland is a stretch of country lying between the Colony of the Cape of Good Hope and the 22nd degree of southern latitude. Its western boundary is the 20th degree of longitude east, the limit of the German possessions in West Africa; its eastern boundary, the Transvaal; on the south the Molapo separates it from the part of Bechuanaland now included in the Cape Colony.

The physical features of the country are similar to those of the Crown Colony to the south; with the difference that, though the Protectorate is better wooded, it is not so well supplied with water. The Limpopo, a fine stream, forming on three sides the boundary of the South African Republic, drains the country on the east; while some tributaries of the Molapo, the Nosob and Oup, draw off the water from the western portion.

There are no European towns in the Protectorate.

The inhabitants, with the exception of the missionaries, storekeepers, blacksmiths, and officers and men of the Bechuanaland Border Police (a fine body of men under military organisation), are all natives.

The Great Northern trade route, after leaving Mafeking, goes through **Sanies** and **Klopeng** to **Korwè**, *en route* to **Shoshong**.

Kanyè, the capital of the Bangwaketsi, presents a most peculiar appearance. Around a large hill innumerable roads are seen to wind, which, however, are all so bad that one does not know which to select as the least objectionable. The situation of the town is splendid, being the summit of a table-mountain which is most difficult to ascend. Once on the summit, the traveller's labour is amply rewarded. The view is superb. The plateau is covered with huts as far as eye can reach, and all are kept very clean. There are three mission churches in the place. The farther northward one travels, the more the natives seem to improve. Large stores are found in Kanyè, filled with the usual extraordinary assortment of goods for carrying on a native trade. The next station is Peelans, twelve miles away; and here is found what may be called virgin forest.

Peelans is a town of fair size, built on the plains, with an enormous hill as a background. As a defensive position the site is admirable. This is the home of Masupha.

The situation of **Molepolelè** is like that of Kanyè, but the ascent of the mountain is infinitely worse. Huts can be counted by hundreds; and in war-time the chief, Secheli, could doubtless put a formidable contingent into the field. On the mountain itself there is no water. The women are obliged to descend into the valley to fetch it, and they take it back in large pots which they carry on their heads. The agility, quickness, and ease with which these women ascend the rugged mountain-paths are really marvellous. There are two churches in this place, one in the valley and one on the mountain, and the missionary's house and garden, surrounded by heavily-laden orange-trees, are a veritable earthly paradise.

Shoshong, the late capital of Khama, chief of the Bamangwato tribe, was once an important village, a little to the north of the Tropic of Capricorn, and was a centre of an inland trade. It lies at the foot of a huge pile of mountains (which in one direction form a large *cul de sac*), but is now quite abandoned, the inhabitants having all transferred themselves with their chief to **Palapye**, or **Palapshwe**, the present capital, which has an estimated population of 15,000 to 20,000, in scattered and straggling kraals, among camel-thorn and wild orange trees. The huts extend for miles, and are usually neat and clean. In the centre is a large common or green. Abundance of water is supplied by streams flowing from Chopong, Chopo, and the surrounding mountains—very different in this respect from Shoshong, from which place a water-famine drove away the chief and his tribe at the commencement of 1890. In the new capital all seem thriving and satisfied. It is said that a reserve of grain has been stored in case of a return of famine. The European residents, chiefly traders, live in tents or huts, and number about thirty.

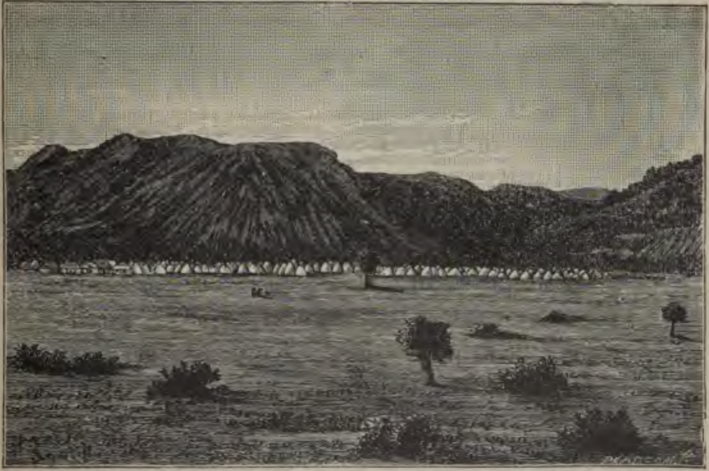


FIG. 24 SHOSHONG, BECHUANALAND, SHOWING THE ABRUPTNESS WITH WHICH MOUNTAINS RISE FROM LEVEL PLAINS IN ARID REGIONS.
(By the kind permission of Mr. C. G. Oates.)

The products of these regions consist of ivory, cattle, hides, wax, gum, and karosses. Trading is generally carried on by barter. A strip in the east of the Protectorate has been placed under the administration of the British South Africa Company, which has laid through it the railway and telegraph lines connecting the northern portions of South Africa with the Cape Colony,

The western portion of the Protectorate contains the **Kalahari Desert**, a continuation of the sterile region (south of the Orange River) known as Bushmanland. Occasional springs, called "sucking-places," are met with; and in many portions the wonderful kengwe (water-melon) abounds. This valuable plant affords, at certain seasons, the only food and drink on which not merely the natives, but also the antelopes have to depend; for it is very prolific, and in its absence crossing this Desert would be impossible. The inhabitants are a few roving Bushmen. The Desert itself is a plateau about 3,000 feet above sea-level. The cause of its want of rain has been previously discussed (p. 76).

BASUTOLAND.

Basutoland, in shape like a rough parallelogram, lies in the eastern portion of Southern Africa, being bounded by the Orange Free State on the west and on portions of the south and north, the remaining parts being contiguous to the British possessions, Cape Colony, its dependencies, and Natal.

It is an exceedingly mountainous country—the Switzerland of the south—divided into three almost equal portions by **two ranges of mountains** (the Maluti and Molappo) running parallel to the Quathlamba, and fertilised by the head-waters of the Orange River, Kornet Spruit, and Caledon River. The most noteworthy peaks in the Quathlamba Range—a word which means "heaped up in a jagged manner" and adequately expresses the appearance—are the **Mont-aux-Sources** (10,000 feet), Cathkin Peak, and the Giant's Head. All these lie along the north-eastern portion of the range.

Basutoland is very fertile, large quantities of grain being harvested. It is known for its hardy, sure-footed ponies; and its sheep and cattle thrive well. Throughout the territory there is but little wood, and many parts are uninhabited, or nearly so—particularly the eastern districts, where the winter climate is excessively cold. The country between the Caledon River and the Maluti (Blue Mountains) is the populated part of Basutoland, and is blessed with a splendid climate. The natives, numbering 130,000, are perhaps the most intelligent members of the Kaffir race. They are both industrious and warlike. Their mountain fastnesses, to which they invariably retire during war, are almost inaccessible by nature, and the Basutos by artfully constructed defences have strengthened them still further.

These people, after waging a tedious and disastrous war with the Free State, placed themselves in 1868 under British protection. In 1871 the country was annexed to Cape Colony; but a rebellion breaking out in 1880, consequent on the Colonial Government trying to enforce the disarmament of the natives, the Basutos sought the intervention of Sir Hercules Robinson, then Governor and High Commissioner, and in 1884 Basutoland was disannexed from Cape Colony and placed under the direct administration of the Imperial Government. The representative of the latter in the territory is at present Sir Marshall Clarke, resident at **Maseru**, assisted by several magistrates stationed in the various districts into which the country is divided, namely, **Thaba Bosigo**, **Leribè**, **Berea**, **Kornet Spruit**, and **Quthing**.

Thaba Bosigo ("the mountain of night"), where the last stand was made by the Basutos against the Burghers of the Free State; the **Berea**, where the British troops met the Basutos; and **Morosi's Mountain**, a stronghold in the south-west, taken after a long and wearisome siege by the Colonial forces in 1879, are places of historic interest.

ZULULAND.

The military despotism established by Chaka, king of the Zulus, fostered by Dingaan, and perfected by Cetywayo, was broken up by the war of 1879, in which the fearful slaughter at **Isandhlwana**, the heroic defence of **Rorke's Drift**, the massacre at the **Intombi**[1] **River**, the untimely death of the Prince Imperial of France, the relief of **Etchowe**, so resolutely held by Colonel Pearson, the battles of **Kambula**, **Zoblani**, the final rout at **Ulundi**, and the subsequent capture of the Zulu king, were the principal events. After this campaign the country was divided into districts governed by various chiefs, but recently the whole has been annexed to the Empire.

Zululand comprises two distinct regions—the coast, humid and unhealthy, and the inland plateau, lying high and covered with grassy undulating plains, on which herds of numberless cattle are seen browsing. The warlike spirit of the natives seems to have been completely cowed by the campaign above referred to, and by subsequent inter-tribal quarrels. They were, a few years ago, the most redoubtable of native foes, not inferior to the dreaded Matabelè From a physical point of view, they are still the finest race in South Africa; tall, erect, broad-shouldered, deep-chested, with sinewy supple limbs and keen eyes, they are admirable specimens of the genus "man." (See the cut on p. 85.)

---

[1] Kaffir = a maiden.

Many of their customs they have evidently inherited from the Arabs. They had no written language—it was invented for them by missionaries—and consequently there are no literary monuments. They are heathens, polygamists, believe in witchcraft and "smelling out," venerate snakes, use charms and incantations, and live in great fear of ghosts. They cultivate the ground but little—the women being the labourers and the tillers of the soil—and their riches consist of cattle, the chief product of the country (including a very handsome dwarf breed), alive or dead.

The land of the Zulus lies north-east of Natal, and is bounded on the south by the Tugela River, on the west by the Indian Ocean, on the east by the Transvaal, and on the north by Swaziland and Amatongaland, which lies immediately to the south of the Portuguese possession of Delagoa Bay, containing an area of 15,000 square miles, and a population estimated at 300,000.

The principal **rivers** are the Umkosi, the White and the Black Umvolosi, which flow into St. Lucia Bay, an outlet north of a cape of that name, and south of a large lagoon-like opening known as St. Lucia Lake. Various other rapid rivers intersect the country, all flowing into the Indian Ocean, among which the Umhlatosi and Amatikulu deserve mention.

Since January 1898 this territory has formed part of the Colony of Natal.

RHODESIA and BRITISH CENTRAL AFRICA.

The area under the administration of the British South Africa Company, on which a royal charter was conferred in 1889, is now officially known as **Rhodesia**, after Mr. Cecil Rhodes, who was instrumental in bringing it under the British flag. It embraces the greater part of the basin of the Zambezia above Zumbo, at the confluence of the Loangwa, together with other extensive tracts reaching to the Portuguese and German frontiers on the west, and comprises in all about 750,000 square miles. It is now divided for administrative purposes into three territories, **Southern Rhodesia**, composed of the provinces of **Matabeleland** and **Mashonaland** south of the Zambezi, and **North-western** and **North-eastern Rhodesia** north of the Zambezi. The limit between the latter two territories is mostly formed by the Kafukwe or Kafue river.

Southern Rhodesia is mountainous and well watered, traversed by numerous tributaries of the Zambezi in the north, and of the Limpopo and Sabi in the south-east. Even the lower grounds are generally at an elevation of about 4,000 feet or upwards, and the country is said to be well adapted for Europeans. Before its occupation by the Company it was known to contain considerable quantities of gold. Formerly it was entirely subject to the warlike tribe of the **Matabele** (more properly Amandabili), a branch of the Zulu family, to whom various other tribes of the region, the principal of whom were the **Mashona**, were tributary. In 1890 the Company, having obtained permission from the chief of the Matabele, organised an expedition which formed a European settlement in the district occupied by the Mashona in the north-east of this region. Here, in the neighbourhood of a hill known as Mount Hampden, **Salisbury** was founded as the seat of administration, and gold workings were commenced. The following account of the Mashonas describes the state of matters that prevailed before this settlement was made:—

"The Mashona villages are most picturesque. They are almost invariably built on hills for protection. Nearly every hut has its separate rock as a foundation, and therefore no two seem to be on the same level. The huts themselves are of wood and grass; and above, below, and around them, tress and shrubs spring out of the cracks in the mountains.

"The Mashonas are a peaceful, industrious people, skilful in working iron, makers of baskets of artistic shape, and of serviceable bags for storing grain; also growers of cotton, which they weave into serviceable cloth.

"It is on these harmless people that the Matabele tax-gatherers sweep down, and, in default of payment, carry off their women and children. Hence their towns are built in spots difficult of access, as they live in daily dread of the Matabele.

"The Mashonas are, without doubt, first of all the nations south of the Zambezi in the industrial arts of a primitive civilisation. The country is one of the most fruitful in South Africa, and well fitted for all farming pursuits, whether pastoral or agricultural, as the seasons are regular and water is abundant everywhere."

Soon after the British settlement a conflict arose with the Matabele. War broke out in 1894, and the settlers being victorious, **Buluwayo**, the capital of the Matabele, at the base of the Matoppo Hills, was occupied. A rising of the Matabele took place in 1896, but was soon put down. Buluwayo is now being rapidly converted into a town with a European aspect, and is already provided with great waterworks. On the 4th of November 1897 the Great Northern Railway through Kimberley, Vryburg, and Mafeking was formally opened as far as this town (1,361 miles from Cape Town), and it is now being continued northwards through **Gwelo** to Salisbury. By the construction of this railway the freight from Cape Town to Buluwayo has been reduced from about £100 to about £15 a ton, and this has imparted a great stimulus to the gold-mining industry of the region by facilitating the introduction of machinery. The total production of gold from 1891 to the end of 1898 was under 23,000 oz., whereas in the single year 1901 it had risen to 172,036 oz. Another line has been made to Salisbury through Portuguese territory. This latter line starts at Beira, on Pungwe Bay (20° S.), and enters British territory at **Umtali**. From Buluwayo the "Cape to Cairo Railway" is designed to strike north-westwards to a bridge across the Zambezi, immediately below the Victoria Falls, and on this route it will pass through the **Wankie** coalfield, which contains extensive supplies of coal little inferior to that of Cardiff. In the south-east of the Company's sphere of operations other townships are rising up at **Tuli**, **Victoria**, and **Charter**, all on the road made by the first settlers who entered the country.

Ancient ruins show that gold was worked in this region at some remote period. The most remarkable of these are the **Zimbabye** or Zimbabwe ruins, about 180 miles due east of Buluwayo.

"The flatness of the plain stretching north and south between the Zambezi and the Mashonaland Mountains," says the Bishop of Bloemfontein, "is very striking. Looking down from the higher parts, the plain below presents almost the appearance of a sea, and seems to be boundless. Large tracts of this plain must be submerged during the rainy season, and the grass is coarse and rank ; but water is very scarce at times, especially where the ground lies a little higher. Along the smaller rivers, in the northern part, the fertility of the ground is very great, the Kaffir-corn growing ordinarily to a height of fifteen feet. Among the mountains the air is most bracing ; in winter the climate is well adapted for Europeans, and the tsetsè-fly is seldom seen."

There is a well-defined range of mountains separating Western from Eastern Mashonaland, which gives rise to some large rivers, the Mazoè, whose bed is 300 yards broad, with its tributaries the Luia or Ruia, and the Luenya or Ruenya flowing east, and the Hanyani and Sanyati flowing north.

North-eastern Rhodesia has been divided into several districts, and contains a number of stations with good brick and iron buildings; among these, **Fife** on the Stevenson Road, connecting Lakes Nyassa and Tanganyika, and **Abercorn** at the south-east end of Lake Tanganyika.

North-western Rhodesia is still mainly under native rule, but two British district officers have been appointed, one for the Batoka district in the south-east and one for the Barotse district to the north-west.

The chief settlements of the **Barotse** (capital **Lealui**) are in a low-lying, marshy, and unhealthy but fertile valley on both banks of the Zambezi, where that river flows from north to south, a valley about 150 miles in length by 25 in width, annually inundated during the rainy season, which lasts from the end of November to March or April.

The British Central Africa Protectorate, or Nyassaland, as it was formerly called, is a territory, under direct British administration, lying west and south of Lake Nyassa, and including the islands in that lake, and traversed in the south by the Shire River, along which it stretches on the left bank to the Ruo, and on the right bank to within a few miles of the Zambezi. This region was opened up by British missionaries and the African Lakes Company (also British) many years before it was proclaimed a British protectorate in 1891. The British settlements are chiefly on the Shire Highlands to the east of the middle

Shire, on which stand **Blantyre**,[1] the chief station of missionaries and planters, and **Zomba**, the seat of administration. European settlements have also been formed at Fort Johnston, Fort Maguire, Kotakota, Bandawe, Karonga, and other places on Lake Nyassa, as well as at various places on the high grounds between the north end of that lake and the south end of Lake Tanganyika.

On these highlands excellent **coffee** is grown, and its cultivation is steadily increasing. With the exception of the Shire Valley, and a strip on the east side of these highlands extending to the brackish Lake Chilwa[2] and the Mlanje Mountains, as well as a strip on the shore of Lake Nyassa, nearly all the territory of the protectorate is above 3,000 feet in height, and near the north of the territory is a plateau called the **Nyika Plateau**, about 1,200 square miles in extent, with an average altitude of 7,000 feet, on which it might be possible for European colonists to thrive. On no parts yet settled is it possible for Europeans to do manual labour. The **Mlanje** or **Milanje Mountains** to the south of Lake Chilwa have only a small area habitable by Europeans, but is noteworthy on account of its fine 'cedar' forests. The tree so called[3] here is more closely allied to the cypress than the cedar, but resembles the cedar in appearance and the fragrant smell of its timber. Zomba and Blantyre are connected by a carriage road with Chikwawa, the river-port at the head of navigation of the lower Shire, just below the curve in the course of that river. Above that point, throughout the curve, navigation is interrupted by a series of rapids. But even where navigable the Shire is very shallow, so that the greatest draught of the vessels that can navigate it is only about 18 inches, and the greatest burden about 40 tons. For this reason, as well as on account of the unhealthy character of the country that has to be passed through between British territory and the Portugese port of Chinde at the mouth of the Zambezi, which makes it desirable to have as rapid a means of transit as possible, the construction of a railway from Chinde to some point in the Protectorate is eagerly advocated. Extensive deposits of good coal have been discovered near the Shire.

THE ORANGE RIVER COLONY.

The story of the former ORANGE FREE STATE is essentially the history of the "Voortrekkers." These people, Cape colonists, dissatisfied with the losses which they maintained had been brought upon them by the Imperial Government in emancipating slaves, for the deprivation of whose services they were not adequately compensated, complaining also of the insecurity of life and property caused by Kaffir incursions on the eastern frontier, determined to free themselves from the trammels of British rule, and, by plunging into the unknown wilderness, to seek pastures new, where they might live free and unmolested under their own form of institutions.

---

[1] Altitude 3,300 feet. Named after Blantyre in Scotland, the birthplace of David Livingstone, the celebrated African missionary and traveller.

[2] Also called by different native tribes Kilwa and Chirwa; improperly called Shirwa.

[3] A species of Widdringtonia.

The leaders of the great wave of emigration, which was to make its influence felt beyond the Orange River, were Trichard, Maritz, and Retief. Once across the river, their trials began. Moselikatsè, who met them near the Vaal River, fell upon several detached and utterly unprepared parties and massacred them. The Boers took their revenge, and taught the wily savage a lesson, of which the memory still lingers in the mind of his son, Lo Bengula of Matabelèland. They then returned to their headquarters on the Sand River, whence a portion of them went to Natal. Their adventures are recounted in the short history of that Colony. These events occurred in 1837. Strengthened in numbers by the return of the most violent anti-English Boers from Natal, the Voortrekkers commenced putting their new house in order; but looking upon the natives as "hewers of wood and drawers of water," specially created by a benign Providence to supply their labour-market; and having been accustomed, in the slave times, to regard them as chattels, between whom and their masters "proper relations" must be maintained, they speedily came into conflict with the blacks. A British Resident was then appointed at the capital, who was to be arbitrator in all disputes.

Shortly after the arrival of Sir Harry Smith as Governor of Cape Colony, the Queen's authority was proclaimed over what is now the Free State. The farmers, under the leadership of Pretorius, determined to uphold their independence. A battle ensued at **Boomplaats**,[1] where they were defeated by the British troops led by the Governor in person. Pretorius, with some adherents, fled across the Vaal, and subsequently founded the South African Republic.

The country was then formed into a separate government, and known as the Orange River Sovereignty; but it was not long before the British Resident became entangled in the squabbles of native chieftains, and hostilities commenced. Though brought to a satisfactory conclusion, the territory—"a howling wilderness, inhabited only by wandering hordes of Bushmen and broken tribes of Bechuana and Kaffir refugees"—was not considered worth the expenditure that it entailed; and on the 23rd February 1854, the "Sovereignty" was abandoned. An assembly of the people was then summoned, and a government established, with Mr. Boshof as President of the newly formed Republic.

The young State was soon obliged to enter upon military operations against the Basutos, and a Commissioner, nominated by the British Government, by request, again acted as arbitrator. Mr. M. W. Pretorius succeeded Mr. Boshof as President, followed by Sir John Brand, who, at his death—an event deeply deplored throughout South Africa—was in turn succeeded in the presidential chair by Chief-Justice Reitz.

Notwithstanding that a boundary had been defined and laid down, the natives refused to respect it. Another appeal to arms resulted; and the Basutos being defeated, a large strip of their country (the "Conquered Territory") was annexed to the Free State. A few years later, war again broke out, when these inveterate enemies of the farmers, being completely overcome, appealed for help to the Governor of the Cape, who, in 1861, declared them British subjects. A boundary between Basutoland and the Orange Free State was then laid down.

---

[1] Dutch = The place of trees.

The discovery of diamonds in what is now Kimberley, led to further diplomatic arrangements with the Imperial Government as regards the western boundary, Her Majesty's Government paying £90,000 to the Free State, and, "as an additional proof of good feeling and desire for the national prosperity, offered a further sum of £15,000 to encourage the construction of railways in that territory." The last event in its history is mentioned on page 88.

Bounded on the east by Natal and Basutoland, on the south by Cape Colony, on the west by Griqualand West and the Transvaal, which latter country also encloses it on the north, the Orange Free State comprised an area of 48,326 square miles, with a population in 1890 of 207,500 (77,500 whites and 130,000 natives).

The surface is mainly one vast, undulating, rolling plain, varied only by detached kopjes and deep river-beds, but in the east there are spurs from the Maluti Mountains. The country is drained by the Vaal, its tributaries, and the Caledon; all being feeders of the Orange River. Of the more important streams that run through the territory may be mentioned the Riet[1] and Modder[2] rivers, the Vet,[3] with its tributary the Sand River, which debouches opposite Bloemhof; and the Valsch,[4] Rhenoster Spruit and Wilge[5] rivers, which draw off the water from the northern and north-eastern portions of the country. None of the rivers are navigable by large craft. At the foot of the Wittebergen,[6] the most important buttress of the main chain of mountains, there is a long, narrow lake known as Liebenberg's Vlei, the outlet being the Liebenberg River, a tributary of the Wilge.

The whole country lies exceedingly high; the average being 5,000 feet above sea-level, and is principally devoted to cattle-rearing. Sheep do well; and in the eastern portion, known as the "Conquered Territory," a large amount of grain is grown. Formerly innumerable herds of game, springbok and other antelopes, gnus, &c., roamed at will over the plains; but their numbers have been materially diminished. Lions were frequently met with, and are still sometimes seen, but the great pachyderms no longer inhabit the country.

The chief drawback to the country is the absence of timber.

[1] Dutch=reed.

[2] Dutch=mud.

[3] Dutch=fat.

[4] Dutch=false.

[5] Dutch=willow.

[6] Dutch=White Mountains.

Mimosas, willows, and acacias grow along the river-courses, but are unsuitable for building.

The mineral riches of the Colony include coal, iron ore, gold, and diamonds; little has, however, as yet been done towards developing these resources; but, now that it is traversed from south to north by the railway from Port Elizabeth to Pretoria, and now that Harrismith is connected through Van Reenen's Pass with the railway system of Natal, a more rapid development may be looked for.

For political and administrative purposes the territory is formed into eighteen divisions.

Towns and Villages.—**Bloemfontein,**[1] the capital, situated on a tributary of the Modder River, lies on an extensive plain almost in the centre of the Colony. It is 90 miles from Kimberley and 105 from Colesberg (Cape Colony), from which latter town the railway has been carried onward. It is the seat of Government and of the Supreme Court, the See of a bishop of the Anglican Church, and the site of the principal church of the Dutch Reformed community.

Laid out after the manner of all South African towns, it has few buildings of note, the Government offices alone being worthy of mention. Commanding the city there is a small fort, an historic relic from the time of the first British occupation. There are four schools for higher education; the Grey and St. Andrew's Colleges (boys), and the Eunice Institute and St. Michael's College (girls), besides several schools for elementary instruction. A considerable trade is carried on, and various banks afford facilities for commercial transactions. Newspapers, published in the place, supply home and foreign intelligence.

Bloemfontein is in telegraphic communication with the other towns and with neighbouring states. On account of its admirable situation, 5,000 feet above sea-level, it is deemed an excellent resort for those suffering from pulmonary affections. It has also a well-appointed Cottage Hospital. The surroundings of the city are intensely uninteresting, being devoid of trees except along the river-courses, where a few willows and mimosas are found. **Thaba 'Nchu,** annexed in 1881, was formerly the capital of an independent native chief, Sepinarè, who was traitorously murdered by Samuel, a pretender to the chieftainship. **Fauresmith,** and the neighbouring **Jagersfontein,** six miles distant, are diamond-mining centres and produce stones of excellent quality. **Smithfield** is the first town north of the Orange River, and is reached from Aliwal North; whilst **Phillipolis,** in about the same latitude, is reached from Colesberg. **Harrismith,**[2] the chief town of the largest district in the Colony, is picturesquely situated on the summit of the Drakensberg. It is noted for the violent hailstorms which sometimes pass over it. The principal article of export from here is wool, of which large quantities are sent away annually; and there is considerable traffic to and from Natal through this place *viâ* Van Reenen's Pass, which crosses the Drakensberg range. **Boshof,** a well-laid-out, tidily-kept little village, containing many shops, public buildings, schools, and churches, does a large wool trade with Kimberley, with which, on account of its proximity, it has extensive and profitable business connections. **Wepener**, close to the Caledon River, named after the late Commandant Wepener, has a history dating from the campaign against the Basutos, 1865–67. Coal is found near **Bethulie** and **Bethlehem**, and at **Vierfontein**, on a branch railway north-west of Kroonstad. The latter is situated in a direction directly opposite to the former, in an exceedingly fertile region. **Winburg** is the oldest settled town in the country. **Ladybrand**,[1] close to Basutoland, lies in the Conquered Territory, a portion of the country taken from the Basutos in the above-mentioned campaign. **Kroonstad** is a pretty village, surrounded by thorn-trees, on the Valsch River, where some boating may be had.

---

[1] Dutch = Flower-fountain.

[2] Named after Sir Harry Smith.

THE TRANSVAAL.

After the battle of Boomplaats, Pretorius, who had declared himself "chief of the whole united emigrant force," crossed the Vaal River after his flight. He was there joined by many of his former adherents; but, jealous of one another, the State, which they had called "The South African Republic," was broken up into a number of petty republics—Potchefstroom, Lydenburg, Utrecht. Eventually, under the son of their late President, M. W. Pretorius, the conflicting elements were united.

President Pretorius, on being nominated to be officer or chief magistrate of the neighbouring State, left the country in 1860. Unfortunately, immediately after his departure the new republic was given up to political disturbances, culminating in civil war. Resigning his office in the Free State, Pretorius once more returned to the South African Republic, over which he continued to preside till 1871, when the Rev. T. F. Burgers, a minister of the Dutch Reformed Church of Cape Colony, was elected to the highest office in the State. While he was absent in Europe, the Volksraad declared war against Secocoeni, a Kaffir chief, and called out the burghers. The expedition ended in a gigantic failure, the men refusing to take part in any further military operations, and avowing their intention of returning to their homes. Financial matters came to a crisis, and the State was on the verge of bankruptcy, when Mr. (now Sir) Theophilus Shepstone, Special Commissioner, annexed the country to the British Empire on 12th April 1877.

A great improvement speedily took place under British rule; credit was restored, money became plentiful, trade revived. But additional misfortune was in store for the Transvaal. Unhappily the Imperial Government, in appointing Sir Owen Lanyon as Administrator, selected an officer who never came in touch with the people. Many of the anti-British party began to raise a cry for freedom and independence. Gradually the cry grew louder and stronger, and eventually it was resolved to make an appeal to arms.

---

[1] Named after President's wife.

A provisional Boer Government was formed at Heidelberg; a triumvirate, consisting of Messrs. Kruger, Joubert, and Pretorius, was appointed; and a general rising of the Boers throughout the land followed. The Lieutenant-Governor of Natal, Sir George P. Colley, was defeated by the Boers at Laing's Nek, the Ingogo River, and Majuba Hill, where he himself was killed. Peace was soon afterwards made, and the Transvaal permitted to have complete management of its home affairs, the suzerainty over the country being retained by Great Britain.

In 1882 Mr. J. S. P. Kruger was chosen President of the Republic. A period of reaction then set in, trade was dead, property rapidly fell in value, credit was suspended. From 1882 to 1885 things went from bad to worse, when the discovery of the gold-fields of Lydenburg, of the Kaap[1] Vallei, and finally of Witwatersrand,[2] entirely changed the situation. Immigrants flocked in numbers to the Republic from all sides, capital was forthcoming, commerce not only revived but advanced by bounds, and new towns arose. But the discontent of these immigrants with the treatment to which they were subjected by the Government of the Republic at length compelled the British High Commissioner for South Africa to press for reforms. The pressure was, however, resisted, and on the 9th of October the Republic, joined by that of the Orange Free State, presented an ultimatum to the British Government, and two days later invaded British territory. In the war that ensued, Pretoria, the capital of the Republic, was taken by the British on the 5th of June 1900, and shortly after the annexation of the Republic to the British empire was proclaimed.

The Transvaal—lying between 25° and 32° longitude east, and 22° and 28° latitude south; bounded on the north and north-west by the Limpopo; west by Bechuanaland; east by the Lobombo Mountains, Swaziland, and Zululand; and south by the Vaal and Natal—covers a superficies almost equal to that of the United Kingdom, with a white population, according to a census of 1896 described as "very incomplete," amounting to 245,000 (138,000 males and 107,000 females), and a native population estimated at 622,000. The country is divided into eighteen districts for political and administrative purposes.

The **Drakensberg** and **Magaliesberg** Mountains form the two watersheds of this country, the former running north-east, the latter almost at right angles to it, east and west. The Magaliesberg chain, extending from Rustenberg to Pretoria, separates the Vaal and its northern tributaries from the waters of the Limpopo and its affluents.

The southern portion of the Transvaal consists of high plateaux extending from the Drakensberg to the capital.

The triple mountain-chain system, such a conspicuous feature of South African configuration, is once again met with, running east and west. The Magaliesberg, mentioned above, forms the first chain; the Dwarsberg,[1] Waterberg,[2] Makapan, Zebedelè, Maschemala mountains the second; and the third contains the Blaauwberg[3] and the Zoutpansberg[4] mountain-ranges.

---

[1] Dutch = Cape.

[2] Dutch = White water's ridge.

The highest peaks of the Drakensberg are Mount Ingwenya, 7,480 feet, Mauchberg, 7,177 feet, Klipstapel, 6,020 feet; and besides these mountain-ranges many hills, kopjes, and undulations are found throughout the country, the tops of which are generally flat, and the denuded sides of which lay bare the rocky under-features.

The two principal **rivers** of the Transvaal are the Vaal and the Limpopo. Rising in the "Hoogeveld,"[5] and forming the greater part of the eastern boundary between the Transvaal and the Free State, the **Vaal** receives as tributaries the Gansvlei,[6] Sand and Kaffir Spruits, Likwa, Krom,[7] Waterval,[8] Klip,[9] Mooi,[10] and Hartz rivers.

The **Limpopo** takes its source on the northern slopes of the Magaliesberg, and, making a tremendous bend, forms the boundary between Bechuanaland on the west and north, and the Portuguese possessions on the east. The Transvaal tributaries are the Jokesky, Hennops, Sandaapies, Pienaars, Pongolo, Nylstroom,[11] Sand, Zehlaba, and Olifant's[12] rivers.

With the exception of the two main rivers and their most important affluents, the streams have but little water in winter. In summer (the wet season), on the contrary, they are transformed into roaring torrents.

The rivers running into the Indian Ocean from the eastern Drakensberg are the Sabi, Crocodile, Komati, which unite to form a single stream which—under the several names of Manica, M'Komoyas, or St. George's—enters the ocean at Delagoa Bay. The Maputa, formed by the union of the Usuta and Pongola, also discharges itself into Delagoa Bay. The White and the Black Umvolosi and the Buffalo—the latter a tributary of the Tugela—are likewise in this region.

The only lake of any importance is **Lake** Chrissie, thirty-six miles in circumference. There are numerous salt-pans throughout this large area; also some mineral springs (sulphur), the most renowned being that at Warmbad,[1] near Nylstroom, in the Zoutpansberg district, which is said to be particularly efficacious for rheumatism, its kindred diseases, and for scrofulous eruptions.

---

[1] Dutch = Cross Mountain.

[2] Dutch = Water Mountain.

[3] Dutch = Blue Mountains.

[4] Dutch = Saltpan Mountain.

[5] Dutch = High.

[6] Dutch = Goose.

[7] Dutch = Crooked.

[8] Dutch = Waterfall.

[9] Dutch = Stone.

[10] Dutch = Pretty.

[11] Dutch = Nile stream.

[12] Dutch = Elephant.

Advancing from south to north, the **climate** varies from temperate through semi-tropical to tropical; and consequently the flora partakes, according to latitude, of the peculiarities of these regions.

The shrubs and trees of the Transvaal are those of South Africa in general, though the northern district exhibits some essentially tropical trees, such as ebony. The animal kingdom has here more representatives than in any other part of South Africa.

From a climatic point of view, the country is divided into two regions: the High Veld between the Vaal and the Magaliesbergen, and the "Bosch[2] Veld" beyond. In summer the northern region is the warmer, and in winter colder than the High Veld. Winter is here the dry season.

The country is admirably suited for raising all kinds of grain and agricultural produce, as well as for cattle, sheep, and goat breeding. Transvaal tobacco is much esteemed throughout South Africa.

Mineral Products.—The Transvaal is without exception the richest of all the settled states of Southern Africa in minerals of different kinds. Gold is found in the districts of Pretoria, Heidelberg, Potchefstroom, Lydenburg, Rustenburg, Marico, Zoutpansberg; silver in Pretoria, Middelburg, Rustenburg; copper in the same district, as well as in Zoutpansberg; lead (and pure plumbago) principally in Marico; cobalt in Middelburg; iron everywhere, particularly in Rustenburg, Zoutpansberg, and Waterberg, where there are entire mountains of it; zinc in Middelburg; tin, bismuth, and platinum in Rustenburg; cinnabar in Lydenburg. Limestone is everywhere abundant, and a natural cement is dug in many places. There are coal-fields about forty miles south of Pretoria, near Heidelberg, at Middelburg, due east of Pretoria, where the best Transvaal coal is said to be produced, and in the neighbourhood of Johannesburg, to the gold-mines of which place a railway is already carrying the precious fuel. The coal is of excellent quality, and quite suitable for "getting up steam."

---

[1] Dutch = Warmbath.

[2] Dutch = Bush.

Under the former government certain industries (strongly "protected" under the disguise of "concessions," &c.) were started in a few places; such as iron-foundries, distilleries, breweries, sugar-boiling houses, tanneries, tobacco-factories, potteries, steam, corn, and saw mills, dynamite and gunpowder factories.

Towns and Villages.—There are few places that deserve the name of town. From an administrative aspect, they are all designated "villages," from the capital downwards. The chief towns of the districts present a fairly animated appearance when the farmers come in to attend divine service and celebrate the communion (nachtmaal), an event that takes place three or four times a year.

Pretoria[1] (10,000 whites), the capital, lies in a valley in the chain of the Magaliesberg, on the Aapjes[2] River, and is about 300 miles from Kimberley. Situated exactly on the border-line between the High and the Bosch Veld, and protected by high hills against cold winds, it has a most agreeable climate. The town is built according to the usual plan, and nearly all the houses are surrounded by beautiful gardens, water furrows running along the sides of the streets.

Thirty miles south by west of Pretoria, at the height of 5,600 feet above sea-level, stands **Johannesburg**, the mining centre of Witwatersrand, popularly known simply as the Rand, a ridge more than sixty miles long on the borders of the districts of Pretoria and Heidelberg, extending also west into Potchefstroom, and now forming the chief gold-mining district, not only in the republic, but in the world. Here promising indications of the occurrence of gold were first discovered in March 1885. Before the close of the year mining had been started, and in July 1886 a portion of the district was proclaimed a gold-field. Now the Rand produces more than eleven-twelfths of the gold produced in the country, and Johannesburg, which was founded on Sept. 20, 1886, has grown with corresponding rapidity. The increase in the production of gold has been as follows:—

Year.	Ozs.	Year.	Ozs.	Year.	Ozs.
1888	229,320	1892	1,293,803	1896	2,280,884
1890	494,393	1894	2,024,162	1898	4,296,000

In January 1890 the population had already grown to 26,300, and at the census of July 16, 1896, this had increased to 48,331 for the town proper, and 102,078 (79,315 males and 22,763 females) for the census area of 28 square miles. This latter number included 50,907 whites, of whom 34,020 were natives of the British empire (comprising 16,265 natives of the United Kingdom, 15,162 of the Cape Colony, and 2,598 of other parts) and only 6,205 natives of the Transvaal.

This rapid growth in wealth and population has naturally made Johannesburg a focus of railways, and the town is now connected by rail with Cape Town (1,013 miles) and Port Elizabeth (718 miles), with Durban (440 miles), and with Delagoa Bay (380 miles). This last line goes by way of Pretoria and the pass through the Lobombo Mountains known as Komati Poort, passing close to the eastern goldfield of De

---

[1] Named after President Pretorius.

[2] Dutch = Little monkey.

Kaap, of which **Barberton** is the centre. **Potchefstroom** (the old commercial capital of the State), on the Mooi River, near to the **Klerksdrop** gold-fields, and **Lydenburg**, to the north of the State, are the only other places that merit special mention.

Swaziland.—To the east of the Transvaal lies **Swaziland,** a quasi-independent country, but administered by the government of the Transvaal in the later days of that republic. It is a healthy district, rich in minerals, game, birds, and fish. Good timber, especially at the foot of the Lobombo Mountains, is abundant, and includes many valuable varieties. The mountainous parts alternate with good arable and well-wooded plains. **Embekelweni** is the capital.

THE GERMAN PROTECTORATE.

GREAT NAMAQUALAND, DAMARALAND, AND OVAMPOLAND.

Great Namaqualand.—From the mouth of the Orange up to the Kuisip River, bounded on the west by the ocean and on the east by the Bechuanaland Protectorate, stretches an arid, barren country, containing nearly 100,000 square miles, called Great Namaqualand.

The rocks, of gneiss and schists, with abundance of quartz, mica, and clay-slate, relate the story of the Primary period. The soil, which is almost solely granitic sand, has been formed by wearing down during the course of ages. Along the coast the mountains are low ridges, which increase in altitude towards the centre of the country. However, the mountains are not the characteristic feature of the territory, but the enormous plains.

Such a country, subject to droughts of long duration, in which springs are exceedingly few, and where the so-called "rivers" seldom flow (for the Nosob, Oup, and Great Fish rivers are merely dry beds, in which water may sometimes be got by digging), cannot be expected to have a large or varied flora. Aloes, euphorbias, mimosas (camel-thorn), Haakedoorn,[1] Wacht-een-beetje,[2] and the putrid-smelling carrion-flower nearly complete the list. The fauna is more numerous. Some of the big game is still found here, but is rapidly either migrating to uninhabited regions or being exterminated.

Owing to the conformation of the country, the climate is intensely hot in summer. The winds from the north-east are like blasts from a furnace. When rain does fall, it is accompanied with terrific displays of lightning and rumblings of thunder. During winter, on the high veld, the thermometer sinks below freezing-point. The climate is salubrious, but the excessive heat produces lassitude, and the sun-glare is frequently a cause of eye-diseases.

---

[1] Dutch = Hookthorn.

[2] Dutch = Wait-a-bit.

The inhabitants belong to the Hottentot family. Barrow considers that, in their colour and the shape of their features, they approach nearer to the Chinese than to any other nation. Of fair height, slight build, with high cheek-bones, thick lips, a light yellow complexion, and with black crisp hair growing in tufts, they are by nature a pastoral race. Want of rain prevents their combining agriculture with their cattle-raising. They are divided into tribes, of which the Bondelzwaarts, the Afrikaners, the Karakikooika (or people of Willem Fransman), and the Veldschoendraagers[1] are the most important.

In many parts the Bushman is found. His habits and mode of life have previously been described (see page 83), eating almost anything and everything that he can find, his hand against every man, and every man's hand against him. "He has no religion, no laws, no government."

There are several mission and trading stations in the country, but the number of Europeans is very limited.

Though barren, the territory is believed to be rich in ores, particularly in copper. Copper ore, ostrich-feathers, gum from the acacia, and horns are the principal exports.

Along the coast, which is low and uniform, we find as harbours Angra Junta, Whale Bay, Elizabeth Bay, Van Renen's Cove, Angra Pequeña,[2] Sandwich Harbour, and Spence Bay, not one of which is of any commercial value. This inhospitable shore is the home of penguins and other sea-birds, whose nests abound on the small rocky islands which lie a short distance away from it. Penguin Island, Shark Island, Ichaboe Island, and Mercury Island have all guano-deposits, which are being worked.

Damaraland and Ovampoland.—These territories occupy the portion of Western South Africa between the Kuisip and Cunenè rivers, the latter forming the southern boundary of the Portuguese possessions of Benguela. The eastern boundary coincides roughly with the 20th degree of latitude east.

Stretching inland for about 30 miles or more, along almost the entire length of the coast of Damaraland, is a belt of shifting sand (dunes), reaching an altitude of as much as 300 feet.

The territory for about 800 square miles around Walvisch Bay, the only harbour along the coast, belongs to Great Britain. It is a good "holding-ground," nearly land-locked, and vessels of almost any tonnage can anchor within hailing-distance of the shore. Into this bay the two rivers of the country (the Swakop and Kuisip), when running, empty their waters. These streams rise in the cool and salubrious highlands of the interior, which, generally speaking, run parallel to the low, fever-haunted coast-line. The usual slope of the mountains is eastward towards Lake N'gami.

---

[1] A veldschoen is a shoe made of untanned hide, literally "field-shoe," hence "field-shoe wearers."

[2] Portuguese = Little Harbour.

The rocks of the country are the same as those of Namaqualand; gneiss, mica, slate, clay-slate and granite. Minerals abound in Damaraland. Gold, silver, copper, bismuth, lead have all been found in large quantities, and several gold-mining companies are already at work.

Ivory, furnished by the elephant, cattle and sheep from the upland districts, and gum from the trees along the river-courses, form valuable and important exports. Hides and skins are also a large source of income to the natives.

"The country is, in all directions, well adapted for cattle-farming; sheep and goats also thrive everywhere. There are certainly not many running streams, excepting the hot mineral springs; but from the periodical rivers water may be obtained by even scratching with the hand to a depth of from six to twelve inches in the gravel; and at intervals the sandy beds of the periodical sand-rivers throw out running streams which leave large pools of water. In the summer season, after rains have fallen 200 miles east, overwhelming floods come roaring down so suddenly that they often carry off some unfortunate family while sleeping on the river-bank.

"For fine-woolled sheep the country seems particularly adapted; grain is cultivated in the gravelly beds of the rivers in order to save the trouble of irrigation. Vegetables of every kind grow most luxuriantly on the low, moist banks of alluvial soil, which might be converted into gardens, and cultivated with but little or no water" (Chapman's Travels).

The Damaras[1] are a finely-built race, but immoral and gluttonous. Their language is called Otjiherero. They arm themselves with broad-bladed spears, long bows, poisoned arrows, and numerous "kerries." **Otjimbingue** is considered the capital of Damaraland.

To the north of Damaraland lies **Ovampoland**, another high table-land, which presents the same features as the country to the south of it.

The **Ovampos**,[2] who are more an agricultural than a pastoral people, raise corn, beans, peas, and similar vegetables, as well as pumpkins, mealies, &c. They have but indifferent weapons, not being of a warlike nature. Their assegais resemble those of the Damaras, being large and broad-bladed; they also carry bows and arrows, but are much less expert in the use of the latter than the Bushmen.

As the Damara suffers from the depredations of the Hottentot, so the Ovampo dreads the Damara. Both tribes are physically infinitely superior to their enemies; but the possession of firearms by the latter, and the evident lack of courage among the former, seem to paralyse their fighting powers when engaged in battle.

[1] A corruption of Dempu = "The" people.

[2] Meaning the merry people.

In consequence, the Ovampos live, not in villages or kraals, but each family resides by itself, and each hut is surrounded by a stout palisade which converts it into a small fort. Unlike other natives, they do not lay up their grain in pits, but in huge jars standing on legs and covered with reeds, the store-room being not unlike a gigantic beehive.

Mr. Lüderitz, a German, acquired some years ago certain concessions, and established commercial relations in Namaqualand, about Angra Pequeña. In 1884 the Cape Colony declining to accept the responsibility of protecting life and property in Namaqualand and Damaraland—which countries had been held to be more or less under British protection—Germany established a protectorate over the territory. A Special Commissioner has been appointed by the Emperor, and a small military force under an officer has been sent out from the Fatherland as a visible sign of German occupation. The protectorate has now been extended from the mouth of the Orange River to the limits of the Portuguese possessions (excepting the Walvisch Bay territory). Inland it is contiguous to British Bechuanaland, the Bechuanaland Protectorate, and the territory of the British South Africa Company, which last it touches on the Zambezi river between 17° and 18° S. and 24° and 25° E.

The best natural outlet for the territory is the British harbour of Walvisch Bay, but an independent harbour is being formed at Schwakopmünde, a little to the north, and a railway is being made thence to Windhock in the interior, near which copper is known to exist in considerable quantity. Copper also occurs at Otavi, in the north of the territory.

THE PORTUGUESE EAST COAST POSSESSIONS.

MOZAMBIQUE.

The inner boundary of the Portuguese possessions on the East Coast was approximately fixed by a treaty with Great Britain in 1891. By this treaty the western boundary in the north is formed by the east shore of Lake Nyassa down to 13½° S. The boundary then strikes somewhat eastwards, passing to the east of Lake Shirwa (or Kilwa), after which it turns southwestwards to the lower Shirè. West of the Shirè (beginning about 17° S.) it strikes first northwestwards to lat. 14° S., then southwestwards to the River Loangwa, which it follows to its confluence with the Zambezi. South of the Zambezi it first runs in a south-easterly direction to the River Sabi, and afterwards in a southerly direction along a line which leaves everything to the east of the meridian of 33° E. under Portuguese dominion or influence, and everything to the west of the meridian of 32½° under British dominion or influence. In this quarter the boundary-line is to be inflected so as to assign Massi-Kesse, in Manicaland, to Portuguese, and

Mutassa to British territory. A line drawn to the sea, from where the Maputa River (which flows into Delagoa Bay) emerges from Swaziland, is made the southern boundary.

These countries were first visited by Vasco da Gama, the celebrated navigator, in 1498. Occasionally a Portuguese vessel touched at their shores, but very little was done in the way of permanent settlement till nearly a century later, when an expedition was sent into the interior to make treaties with the native chieftains, and to acquire certain mining rights. The portion visited comprised the somewhat fabulous kingdom of Monomotopa, of which much was heard during the preliminaries of the late political arrangement above referred to. At the commencement of the present century expeditions are said to have crossed the continent; but the settlements are, at present, in a semi-moribund condition.

Coast-Line.—Steaming northward from Port Natal, we pass along a coast which is for the most part of the same unbroken character as the South African sea-board. The land on the coast is low, but is flanked by high mountain ranges.

The harbour of **Delagoa Bay** is the best along the coast. Spacious, deep, and well protected, it provides ample and adequate security for the finest sea-going vesssels. The inner harbour, however, is divided from the outer by the ever-recurring bar. The colonial steamship lines frequent the harbour, as do also those of the British-India lines. Off the entrance to the bay is Inyack Island, on which a lighthouse stands.

The **Limpopo** is next reached, and farther northward the **Sabi River**, the mouth of which forms a delta, and the principal arm of the river running into Maramone Bay. Between the Limpopo and the Sabi rivers are passed **Capes Lady Grey** and **St. Sebastian**, and the islands of **Benguela** and **Bazaruta** (where there are some pearl-fisheries). Continuing our voyage, we first pass **Sofala**, and a little farther north (immediately to the north of 20° S.) the estuaries of the Bosi and Pungwe rivers, both of which are navigable in their lower course. **Beira**, at the mouth of the Pungwe, seems likely to prove the best outlet for the British settlements in Matabeleland. The coast now begins to trend north-eastwards, and sailing in that direction for more than 100 miles, we at length reach the delta of the Zambezi.

Formerly there was no known arm of this intricate delta capable of being used by ocean steamers, but since 1890 the seaport of **Chinde** has grown up on the mouth of the river of the same name, where the bar is least troublesome and the river is least encumbered with mangrove swamps. This port is now connected with Europe by regular lines of steamers, and serves as the outlet for British Central Africa (Nyassaland).

Still further north a port is about to be founded on Pomba or Pemba Bay, under the name of **Amelia City**, and from it a railway is to be made inland through rich coal, iron, and gold fields to a port on Lake Nyassa.

Climate.—The coast-lands all lie low, and in summer are particularly unhealthy. Even in the settlements no attempt at sanitation has been made; though doubtless, with the increasing importance of Lourenço Marquos, something will have to be done in future. The delta of the Zambezi reeks with fetid miasmas. The seasons correspond more or less with those of other parts of South Africa, the winter being the most healthy.

Products.—The fruits of the earth are the most noticeable productions of these regions; mango, cotton, sago, tobacco, sugar-cane, indigo, coffee, and grain grow luxuriantly. The natives, especially on the Zambezi delta, are said to have lost most, if not all, of their former industries, such as cotton-weaving and iron manufacture. All kinds of tropical fruits, including the vine, mango, orange, lemon, citron, guava, and among trees the "rubber," mulberry, and palm, flourish well.

Gold is found in many places, but the unhealthiness of the climate is a great drawback to systematic prospecting of the country.

The trade is mostly in the hands of the Portuguese, and the European inhabitants are few in number.

Towns.—From a commercial aspect, **Lourenço Marques**, on Delagoa Bay, is without doubt the busiest town, at present, of the Portuguese possessions south of the Zambezi. Its fine harbour has already been mentioned. Facilities for discharging cargo there, are, however, imperfect. A railway through the Komati Poort in the Lobombo Mountains to Pretoria and Johannesburg was completed in 1895 (see p. 135). The capital is **Mozambique**, situated just below the fifteenth parallel of south latitude.

Some years ago the Delagoa Bay territory was claimed by Great Britain, but, on submitting the dispute to Marshal MacMahon, then President of the French Republic, his award was made in favour of Portugal. **Sofala**, on a river of the same name, is the oldest town of the possessions. **Quilimanè**, an important seaport on the north bank of the Quaga or Quilimane River (north of the Zambezi delta), is surrounded by swamps, and is consequently a place of mud, fever, and mosquitos; but on the other hand, its delicious oranges, mango-groves, and delightful avenues, command the praise of every visitor. **Sena**, **Tetè**, and **Zumbu** (the latter in ruins) are stations on the Zambezi. The first-named is the military headquarters of the district. Tetè is of some commercial importance, and is just above the **Lupata Straits** (Zambezi), on the boundary of the British South Africa Company's territory.

Manica and **Shamatshama** (Umsila's kraal) are the two chief places in the highlands of the interior; the former lying north-west, and the latter south-west, of Sofala.

NORTHERN AND MIDDLE AFRICA.

1. **EGYPT**, the country of the Lower Nile, together with a portion of North-west Arabia, including the peninsula of Sinai, has an area of between 300,000 and 400,000 square miles; but so large a part of this is desert that the whole extent capable of cultivation is less than twice the size of Wales. This cultivated region is almost confined to the delta of the Nile (Lower Egypt) and the narrow valley, varying from ten to fifteen miles in breadth, which borders that river above the delta (Upper Egypt). There accordingly the immense majority of the ten millions of inhabitants of the country are settled, and the density of population is very high (above 600 to the square mile). The most considerable cultivated area not belonging to the Nile valley is a depression to the west of that valley known as the **Fayum**, into which a canal, called the **Bahr Yusuf**, is led from the Nile, beginning at a point about fifty miles below Siut. In this nearly rainless region the regular **inundations** of the river occurring in autumn (in consequence of the monsoon rains of Abyssinia) supply both moisture and a fertile soil, as on the banks of the Euphrates and Tigris. Hence from the remotest period this valley has been the seat of a dense population, and in ancient times was occupied by one of the oldest of civilised nations, remains of which are to be found both in Lower and Upper Egypt. In Lower Egypt are the famous **pyramids** at the head of the delta opposite the modern Cairo; in Upper Egypt the ruins of the equally wonderful **temples of ancient Thebes** (at Luxor and Karnak). Outside of the region capable of being irrigated from the Nile there are only a few oases in the desert, among which may be mentioned the **Oasis of Siwah** (the ancient Ammon), situated to the south of the Libyan plateau in about lat. 29° N.

At all times the principal occupation of the inhabitants of this valley has been **agriculture**, in the pursuit of which water-wheels and other irrigating apparatus are necessary. The principal product, besides grains grown both for food and for export, is **cotton**, which now forms by far the largest of the Egyptian exports. The cultivators (the fellahîn) are subject to a despotic ruler (the khedive), who is tributary and pays a nominal allegiance to Turkey,[1] but the government is at present to a large extent under British influence. Under British management the irrigated area has been considerably increased.

---

[1] *Egypt* was conquered by the Turks in 1517.

Railways connect the principal towns in the delta, and one line ascends several hundred miles up the Nile valley. The **Suez Canal,** which allows the largest ships to cross the isthmus of that name from Port Said, on the Mediterranean, to Suez, on the north-western arm of the Red Sea, runs through Egyptian territory.

The capital is **CAIRO**[1] (375), at the head of the delta, near the site of the ancient Memphis, connected by the Mahmudieh Canal as well as by railway with **ALEXANDRIA**[2] (230), which has in consequence greatly increased its population, though even in size it is still far behind what it was in ancient times, when it was the residence of the Ptolemies, and for centuries the chief seat of Greek culture, and numbered, it is said, about a million inhabitants.

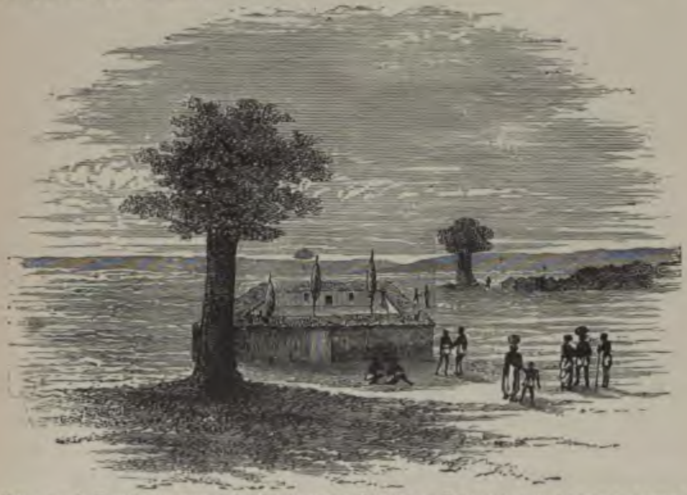


FIG. 25.—A TEMBE, ONE OF THE COMMONEST FORMS OF DWELLING IN CENTRAL AFRICA.

The name of **Egyptian Sudan**[3] has been given since 1821 to vast regions in the south of Egypt, reaching almost to the equator.

These regions (**Nubia,**[4] **Kordofan, Dar-for**, &c.) are extremely arid in the north, but rains begin to be more abundant about the latitude where the Nile is joined by its lowest tributary, the Atbara; and the rainy season increases in duration as one goes southwards. The commercial and political centre of this region is **Khartum**, at the confluence of the White and Blue Nile; and **Suakim** (Sawákin), on the Red Sea, is the chief port. From about 1883 the government of this region was quite unsettled, but Egyptian rule was re-established here in September 1898 by a British-Egyptian force, and since then Khartum has been brought into connection with Wadi Halfa by rail.

---

[1] Founded by the Arabs in the first half of the seventh century, after the conquest of the country by that people during the rise of the Mohammedan religion (see p. 274).

[2] Founded by and named after Alexander the Great, 332 B.C.

[3] (Beled-es-) Sudan, Arabic=Country of the Blacks.

[4] Egypt proper is now considered to end, and Nubia to begin at the second cataract of the Nile (the Wadi Halfa), about lat. 22° N.

2. CENTRAL SUDAN—the region between Kordofan and the Upper Niger.

In the western portion of this region a Mohammedan people called the **Fulbe**, or Fellata, made itself dominant in the nineteenth century, but the most numerous and industrious people are the **Haussas**, who form the bulk of the inhabitants of the **Sókoto** empire between **Bornu** and the middle Niger. Both Sókoto and Bornu now acknowledge British suzerainty, and form the British district of **Northern Nigeria**, whose administrative centre is at **Lókoja**, at the confluence of the Niger and Benue. Further west Central Sudan is in the hands of the French, and in this region **Timbuktu**, situated on the edge of the desert,[1] a few miles north of the Niger, has long been a noted caravan centre.

3. WESTERN MEDITERRANEAN STATES.—(*a*). **Tripoli,** a vast region opposite Sicily and Italy, with a total area equal to four times that of Great Britain, but in which the whole extent of cultivated land is estimated to be only about as large as the county of Norfolk. The cultivated land lies chiefly on the coast, partly in the neighbourhood of the town of Tripoli, partly on the borders of the plateau of Barka, where in ancient times stood the Greek colony of *Cyrene* and the other towns of Cyrenaica. Tripoli, long a dependency of Turkey, is now administered as a province of the Turkish Empire. Population about one million. In this province, as in all the countries to the west, the population is mainly composed of Arabs, Berbers—a race peculiar to North Africa—and Moors, the last being a mixed race descended from the two others, and inhabiting the towns. On the whole line of coast (700 or 800 miles) there is only one seaport of consequence, that of Tripoli, which is chiefly important as the centre of the trade across the desert, the point of arrival and departure for camel caravans, through the oases of Fezzan, to Bornu, and south-westwards to Timbuktu.

(*b*). **Algeria and Tunis,** the former a French colony since 1830, the latter under French control, are both traversed by the parallel chains of the Little and Great Atlas, which in Algeria leave only a narrow strip of well-watered cultivated land (the Tell), between the Little Atlas and the coast, while in Tunis the plateau which separates them, sinks down towards the Gulf of Tunis, and becomes the fertile valley of the **Mejerdah,** watered by a permanent river. The climate and products of the lowlands are similar to those of Southern Europe (see pp. 155–6). Round the city of Algiers are grown fine early vegetables for the London and Paris markets. **Alfa,** the only product of the plateau (which in Algiers has a breadth of more than a hundred miles), is one of the chief exports of the country, and is mainly sent to England for use in paper-making. Since Algeria has been occupied by the French, much has been done for the development of the country chiefly by the making of roads and railways, but also by the sinking of **Artesian wells.**[1]

---

[1] See Introd. p. 61 (3) (*c*).

French settlements in the colony have not been very successful, but in the portion under cultivation (chiefly the Tell) the Berbers (here called **Kabyles**[2]) are settling in increasing numbers. The Berbers are essentially an agricultural people, and present a complete contrast to the Arabs, who are pastoral and nomadic. These are therefore found solely in the remainder of the territory, which is under military government, and, above all, in the region south of the Atlas, the **Biled-ul-jerid,** or 'Land of Dates.' In the east of the territory a district occupied by shallow salt lakes, called *shotts*,[3] is beneath the level of the Mediterranean; and proposals have been made for piercing the intervening barrier and letting in the waters of that sea to submerge the district.[4] The whole population of Algeria, which, exclusive of the portion belonging to the Sahara, is as large as the British Isles, is under 3,500,000. Tunis, with a much smaller area (half the size of Great Britain), has about two millions, and is hence much more densely peopled; and the town of **TUNIS** is the only one in the two countries with a population above 100,000. It stands on the Gulf of Tunis, about ten miles from the ruins of ancient *Carthage*. The coast towns of **Algiers** (in the middle), and **Oran** (in the west), and the inland town of **Constantine** (in the east) give name to the three civil provinces under French rule in Algeria.

(c). **Morocco,** a country subject to a Mohammedan despot, and generally known as the Empire of Morocco. Its area can only be vaguely estimated at three or four times that of Great Britain, but as in Algeria the bulk of the population is confined to a limited extent of fertile and comparatively well-watered land, called the **Tell**, extending along the base of the mountains.[1] To this country belong the **Atlas Mountains** proper, which, sweeping round from Cape Ghir on the west coast, attain as great an elevation as the Pyrenees, and ultimately merge in the coast mountains on the north, called **Er Rif**, and can hardly be regarded as continuous with the longer ranges which bound the plateau of Algeria and Tunis. The total population of the empire is roughly calculated at about six millions; but nothing but good government and proper cultivation are wanted to make it much more numerous.

---

[1] Known in this region, however, long before the arrival of the French. See p. 30.

[2] The representatives of the ancient Numidians, who furnished the Roman army with its best cavalry. From among the Kabyles the *Zouaves* of the French army were at one time recruited, as the *Turcos* are still.

[3] Shotts also exist on the plateau. [4] The project is now abandoned as too costly.

Almost all kinds of grain might be grown in abundance, and the country is also rich in minerals and timber. All the chief towns, **Fez**, the capital, and **Mekinez** in the north, **Morocco** in the south, lie at some distance from the west coast among the mountains. They are all manufacturing towns, and the preparation of the kind of leather to which Morocco gives name is still an important industry. Fez makes and exports great quantities of red cloth caps, which take their name from that city, and are almost universally worn in Mohammedan countries.

4. WEST AFRICA FROM THE SENEGAL TO THE CONGO.—Along the whole coast in this region English, French, and Germans have established at intervals trading stations and protectorates. The French have pushed their influence up the Senegal to the upper and middle Niger and thence southwards to the Ivory and part of the Slave Coast. In the latter region their domain includes the native kingdom of Dahomey. The French also claim a protectorate over most of the region between the Lower Congo and the Atlantic to the north of the Gaboon River.

The British coast possessions in this region are a narrow tract on the **Gambia**; **Sierra Leone**, on the surf-beaten west coast; the **Gold Coast Colony**, with the seaports of Akra and Cape Coast, and which now includes the former kingdom of **Ashanti** (cap. **Kumasi**); **Lagos**, and **Southern Nigeria**, this last extending to the Rio del Rey, and containing the seaport of Akassa, and the administrative station of Asaba. Lagos, Southern Nigeria, and Northern Nigeria (p. 144) form a single customs union, but three administrative divisions.

The German stations are principally in the neighbourhood of the **Cameroon Mountains**, opposite the Spanish island of Fernando Po, in the angle between Upper and Lower Guinea; but Germany has also another small settlement to the east of the Gold Coast called **Togo Land.**

---

[1] See Introd. p. 52.

The **Pepper Coast**, which runs from north-west to south-east, belongs to the republic of **Liberia**, which was founded early in the present century by some philanthropists as a home for freed slaves.

Agriculture is generally neglected, but where pursued rice and ground-nuts[1] are the chief products. The principal exports of this region are palm-oil[2] (especially from Lagos, the chief centre of trade on the whole of the Guinea Coast), gold (especially from Cape Coast Castle), ivory and india-rubber (obtained from a liana[3]); and the articles taken by the natives in exchange are chiefly coarse cotton and other cloths, rum, fire-arms, and gunpowder.[4] Coffee plantations, under the supervision of Europeans, have been tried in some places with success. For Europeans the coast, as everywhere else in tropical Africa, is very unhealthy.

5. THE CONGO FREE STATE.—Till 1877, when the Congo was descended by Stanley, the course of that river was unknown. The descent of the river on that occasion made known the fact that this magnificent stream affords **1,000 miles of uninterrupted navigation** between Stanley Falls (just before the river first crosses the equator) and Stanley Pool, about 300 miles from the mouth. On the next 200 miles numerous falls and rapids occur to interrupt the navigation. After Stanley's descent of the river an International African Association was founded, under the head of the King of the Belgians, for the exploration of Central Africa, and more particularly for the opening up to commerce of the Congo basin, which seems to be pretty thickly peopled.

With this view a railway, constructed to avoid the rapids, was opened in July 1898. Numerous European stations have been set up at various points along the course of the river, and steamers have been launched, which ply regularly between Stanley Pool and Stanley Falls. Under a treaty concluded between the chief European Powers in 1885, free trade was established throughout a large portion of Central Africa, including the Congo basin, and a portion of that basin, amounting to about ten times the size of Great Britain, was set apart to form the Congo Free State, the management of which is entrusted to the International African Association. At the same time it was provided that special measures should be taken against the slave-trade, the curse of the region. The trade of the region, at present small, is in the same articles as in the rest of Western Africa.

---

[1] A pod-fruit like the pea or bean, but having this peculiarity, that it buries its pods underground to ripen; hence the name.

[2] Used for soap-making, greasing the axles of railway carriages, &c.

[3] See p. 66 *n.* 5, and 347 *n.* 2.

[4] The trade is largely carried on by barter, in which glass beads have a high value with the natives. A kind of shells called *cowries* circulate as money.

6. PORTUGUESE LOWER GUINEA, from the Congo to 18° S., a little beyond the river Cunene. In the north the left bank of the Congo belongs to Portugal for ninety miles up, and Portuguese territory extends about 300 miles inland to the Kwango, a southern tributary of the Congo. Here, as in most parts of Africa, there is a comparatively rapid rise from the coast to the interior, and next the coast there is an arid and nearly desert tract, which increases in width towards the south from about five to about 100 miles. At a distance of about 100 miles from the coast lie some of the richest and healthiest regions of West Africa, at an elevation of several thousand feet above the sea level.

On these higher parts **coffee** is an important product. The oil-palm is met with only in the north of the region, but **india-rubber** is abundantly obtained from the same **liana** as in the rest of West Africa, and **cotton** and **sugar** are grown for export. The number of whites among the population is only about 12,000, some hundreds of whom are Portuguese convicts.

The three seaports of **Loanda, Benguela,** and **Mossamedes** (the first and third of which have two of the finest natural harbours on the west coast of Africa) give name to three provinces. The chief seat of the Portuguese government is at Loanda, which is situated near 9° S., about half a degree to the north of the mouth of the Kwanza. The Kwanza is the principal river that traverses Portuguese territory, and is navigable for about 200 miles from its mouth.

The coast regions of Portuguese territory become more and more arid as we advance southwards, no rivers in that region flowing all the year round to the sea, so that the population consists only of a few hunting and pastoral tribes.

7. EASTERN AFRICA.—Nearly the whole of East Africa from about lat. 18° N. on the Red Sea to Cape Delgado (about 10½° S.), is now partitioned into regions declared to be under British, German, and Italian influence respectively.

British East Africa is a vast territory extending along the coast from 4° 40′ S. to the mouth of the River Jub (less properly Juba), in 0° 15′ S., and stretching north-westwards from that coast-line into the interior, where the limit is not yet determined, and comprising also the islands of Zanzibar and Pemba, belonging to the sultanate of Zanzibar. The boundary extends westwards from the parallel of 1° S. northwards to the frontier of the Congo Free State. To the north the territory includes an undetermined area about the Upper Nile, the north-east boundary running from the Rahat, a tributary of the Blue Nile, then southwards along the meridian of 35° E. to the parallel of 6° N., thence eastwards along that parallel to the **Jub**, which from that point forms the boundary to the coast, and which is important as being navigable by light-draught steamers for hundreds of miles into the interior (to about 2½° N.). The territory embraces the whole of the Great Rift Valley, from between 2° and 3° S., together with the volcanic area on both sides of that depression, including Mount Kenia on the east and Mount Elgon on the west. Its principal rivers, besides the Jub, are the **Tana** and **Sabaki**, both of which have their head-waters in the eastern volcanic highlands, and flow on the whole south-eastwards. The Tana rises on the slopes of Mount Kenia, and, like the Jub, is navigable for hundreds of miles upwards (nearly to the equator). The **Athi**, the chief head-water of the Sabaki, rises in the highlands to the south-west. Neither it nor the Sabaki proper is navigable; but the Athi is important, inasmuch as its valley forms one of the main trade-routes into the interior. The most fertile, most densely peopled, and most civilised region on the mainland in the whole of this territory is that lying north and north-west of the Victoria Nyanza, consisting of the kingdom of **Uganda**, or **Buganda**, to the west, and **Usoga**, or **Busoga**, to the east of the Nile. The chief ports are **Mombasa**, on a small coast island in 4° 3′ S., with a fine harbour sheltered by a coralline bar; **Malindi** (Malinde, or Melinde), near the mouth of the Sabaki; and **Lamu**, on another coast island in Witu, north of the Tana. The whole area of the territory is estimated to be upwards of a million square miles. In 1896 a railway from Kilindini, on the mainland opposite Mombasa, to Uganda was commenced.

The **German sphere of influence** extends from the River Rovuma northwards to the British boundary, and westwards to Lakes Nyassa, Tanganyika, and Victoria Nyanza. Its chief ports are **Bagamoyo**, **Dar-es-Salem**, and **Kilwa**.

The **Italian sphere of influence** formerly extended from the River Jub and the sixth parallel of north latitude to about 18° N., its western boundary being formed by the meridian of 35° E. from

6° N. to about 13½° N., and thence by a line running north-eastwards. It thus included Abyssinia, over which Italy claimed to exercise a protectorate; but this claim has had to be abandoned in consequence of a crushing defeat suffered by the Italians in March 1896.

It also surrounds certain seaports belonging to other powers. **Berbera** and **Zeila**, on the Gulf of Aden, are British; **Obock** and the Bay of **Tajurra**, on the same gulf, are French. The principal Italian ports are **Assab** and **Massaua** (**Massowah**), both on the Red Sea.

Abyssinia is a country about one-half larger than Great Britain, composed of an assemblage of more or less isolated plateaux difficult of access, and often bounded by precipitous sides. The plateaux are all high enough to be supplied with abundant rain (chiefly in summer), but, as they differ in elevation, some are clothed with tropical forests while others are too high to grow any grain but oats and barley. The inhabitants, a dark-coloured Semitic race, received Christianity at an early date, and have ever since retained at least the forms of that worship.

Throughout German and British East Africa, merchandise must be carried by human porters, beasts of burden being killed either by the climate, or, in some places, by the tsetse fly, whose bite is fatal to horses and cattle. Farther north, in the drier **Somali Land**, which occupies the eastern angle of Africa, the camel can be used. The centre of the caravan trade in this region is **Harrar**, the Timbuktu of East Africa.

AFRICAN ISLANDS.

(a) In the Atlantic Ocean. Almost all these islands are of volcanic origin, and most of them were uninhabited when discovered by Europeans. They all now belong to European Powers.

The **Azores**,[1] usually considered as African islands, although by the Portuguese, to whom they belong, they are treated as a part of the kingdom of Portugal. The climate is healthy, and the islands are now covered with orange groves.

Madeira,[2] also Portuguese, a favourite resort for invalids requiring a mild climate; noted also for its wine. The chief town is **Funchal**, a calling station for Atlantic steamers.

The **Canary Islands**, belonging to Spain. On the largest island is an active volcano upwards of 12,000 feet high, known as the Peak of Teneriffe. Cochineal is now the principal product for export.

---

[1] From the Portuguese word for 'a hawk.'

[2] Portuguese = wood, from the forests that covered the island at the time of its discovery, but which were soon after for the most part destroyed by a conflagration.

The **Cape Verde Islands**, belonging to Portugal. The island of St. Vincent, though arid and unfruitful, has a magnificent harbour, on which account it is often used as a calling station by Atlantic steamers.

The four **Guinea Islands** (in the angle between Upper and Lower Guinea) produce sugar, cacao, quinine, and other products. **Fernando Po** and **Annobon**, respectively the northernmost and southernmost, belong to Spain; the two middle ones, **Principe** and **St. Thomas**, to Portugal.

The three islands of **Ascension**, **St. Helena**, and **Tristan da Cunha** belong to Britain. Ascension is used as a store depôt and a sanatorium for the British West African squadron. It is celebrated for its turtles. St. Helena has a fine natural harbour, and is hence another place of call used by Atlantic steamers, On this island Napoleon was confined after the battle of Waterloo till his death in 1821.

(*b*) **In the Indian Ocean. Madagascar**, an island more than two and a half times the size of Great Britain. It has a mountainous core rising to nearly 9,000 feet in height and enclosed by plains traversed by lower mountains. A belt of dense forests surrounds the inner core. Rain falls most abundantly on the east coast, where accordingly the vegetation is most luxuriant, but where the climate of the plains is fatal to Europeans. In the south-west are steppes similar to those of Inner Africa, but without any of the antelopes and other large mammals of that continent—a proof that the island must have been separated from the mainland from a comparatively remote geological period.[1]

Rice and **manioc**[2] are the principal food-products. The ruling tribe is that of the **Hovas**, who belong to the Malay family, and accordingly have immigrated from Southern Asia. The earlier inhabitants, belonging to African races, are chiefly found in the outer parts of the island. The whole island is now under French protection. The capital of the country is **Antananarivo**, in the interior highlands.

Between the north of Madagascar and the mainland are the volcanic **Comoro Islands**, among which Mayotte belongs to the French; and east of Madagascar are other two important volcanic islands, **Mauritius** and **Bourbon**, the former belonging to Britain, the latter to France.

Both are important for the production of **sugar**, and, in respect of the quantity produced, Mauritius has no rivals among the British possessions except British Guiana. The labourers of this densely peopled island are principally Indian coolies.[3] Among the dependencies of the Mauritius are the **Seychelle Islands**, farther north, celebrated for their double coco-nuts.[4]

---

[1] Comp. p. 316, *n*. 2. [2] See p. 304. [3] See p. 284.

[4] The fruit of a palm-tree, the largest fruit in the world. It resembles two coco-nuts joined together. The tree from which it is derived is one of the loftiest and most graceful of the palm-tribe, sometimes attaining a height of about one hundred feet.

EUROPE.

Approximate latitudes: North of Norway, 71° N.; south of Spain (north of India), 36° N.
Approximate longitudes: Ural Mountains, 60° E.; west coast of Iberian Peninsula, 9½° W.; of Iceland, 24° W.

THE eastern boundary of Europe has always been a matter of dispute, for in the east this continent is united to Asia in such a manner as to form only a peninsula of the latter continent. Yet Europe has from the first been recognised as distinct, (1) because the earliest civilisation in Europe was in the south, where it is divided from Asia by seas, and (2) because Europe, as a whole the most densely populated of all the continents, has so much in common in the history of its inhabitants.

The area varies according to the boundary line adopted in the east. On the whole, the most convenient line to adopt is that of the Ural Mountains, the Ural River, the Caspian Sea, and in the south-east a line running east to west through what is called the **Manich Depression**, from being partly traversed by the Manich, a tributary of the Don. By the adoption of this boundary the whole of the Caucasus region is assigned to Asia.

Within the boundary indicated, the area is about three and three-quarter millions of square miles—more than forty times the area of Great Britain.

The **coast-line** is the longest relatively to area of any continent, and the advantage of this to shipping is increased by the fact that the length of coast-line is due not merely to a large number of small indentations, but to its running out and in in such a manner as to form large inland seas and gulfs with peninsulas between. The interior is thus brought nearer to the sea, and in fact no part of Europe is as much as 1,000 miles distant from the coast.

All the seas and gulfs in the north are shallow, while all those in the south, except the Sea of Azof, are deep.

If the level of the whole continent with the surrounding seas were raised 600 feet, which is not much more than the height of the highest buildings above the ground, the White Sea, the North Sea or German Ocean, the Baltic with its branches, would all be converted into dry land with the exception of a few small basins, and at the same time the west coast of Europe would be extended so as to run from the west of Norway round the Shetland Islands, the Hebrides, and the west of Ireland, and then back to the south-east corner of the Bay of Biscay. Deep seas would, however, still remain along the south of Europe, although the greater part of the Adriatic, between Italy and the Balkan Peninsula, would be added to the mainland. Sicily would be united to Italy, Corsica to Sardinia, and Majorca to Minorca.

Beyond the line that would then form the west coast of Europe the depth of the ocean increases rather suddenly, so that that line may be held to mark the permanent boundary of the continent, and all the seas within it belong to the variable belt[1] which in some ages is dry land, in others water. All the islands within this belt are hence European islands; but the **Faroe Islands** and even **Iceland** are also considered European, because they have long been held by European powers, and because their climate resembles that of Europe more than the adjacent parts of America.

Europe has three great inland seas: **the Baltic, the Mediterranean, and the Black Sea.** They are called inland because they communicate with the ocean or with other seas only by narrow straits or channels. The Baltic communicates by means of the **Kattegat,** between Denmark and the south-west of Sweden, with the **Skager Rak,** a branch of the German Ocean; the Mediterranean with the Atlantic Ocean by means of the **Strait of Gibraltar** (less than nine miles wide); and the Black Sea, by means of the **Bosporus,** with the Sea of Marmora, which itself communicates by the **Dardanelles** with a branch of the Mediterranean.

The Mediterranean and the Baltic contrast with one another in several respects besides depth. The Baltic lies in a region where rains are plentiful and evaporation slight, and where accordingly numerous rivers convey abundance of fresh water to the sea, but little is returned to the air; the Mediterranean in a region where rains are scanty and rivers few, but evaporation brisk. The Baltic thus has its water made very fresh (in some parts less than one-fourth as salt as that of the ocean), the Mediterranean, on the contrary, salter than that of the ocean. The former tends to have its level raised by the fresh water poured into it, the latter to have its level lowered by the rate at which fresh water is drawn up from it as vapour by the power of the sun. Hence the Baltic is constantly overflowing—that is, a current is constantly running outwards from it into the German Ocean; the Mediterranean, on the other hand, is constantly receiving an overflow from the Atlantic. A current flows inwards at the Strait of Gibraltar, and, advancing along the north coast of Africa, is often a great hindrance to sailing vessels.

---

[1] See Introd. p. 25.

Tides are scarcely felt in either sea. The currents at the mouth prevent them from sharing in those of the ocean, and they are too small to have great tides of their own.[1]

With respect to the **surface**, the mainland of Europe may be divided into three regions. (1) In the north there is a highland or mountainous region occupying the peninsula of Scandinavia. (2) Another mountainous region occupies the greater part of the south, reaching farthest north about the middle, where its boundary advances in Central Germany nearly to the latitude of London, receding thence south-westwards through the middle of France to the Pyrenees, and south-eastwards to the mouth of the Danube. (3) Between these two mountainous areas in the north and south there is a vast plain which stretches continuously from the shores of the English Channel and the German Ocean to the east of Europe, and in Russia spreads out north and south from the shores of the Arctic Ocean to those of the Black Sea.

The principal mountain systems are those of the **Alps**, the **Pyrenees**, the **Carpathians**, and the **Ural Mountains**.

From the smaller size of the continent and the way in which the surface is broken up and the outline indented, it follows that there can be no such large **rivers** in Europe as in Asia, Africa, and America. The largest are the **Volga** and **Danube**; the Volga in the great European plain, the Danube in the depression between the Alps and the Carpathians.

Though wanting in large rivers, Europe has three advantages in its river system. (1) **The rivers, though short, are very numerous, and are almost all navigable** for a longer or shorter distance, so that they serve to bring a great number of points on the coast into communication with the interior. (2) **The chief rivers radiate from common centres**, and thus bring the same inland regions into communication with far distant coasts. Two important centres should be remembered: (a) The **Alps**, whence flow the Rhine to the German Ocean; the **Rhone, Po, and Adige**, to the Mediterranean; and several tributaries of the **Danube** to the Black Sea. (b) The region in the heart of Russia, of which the **Valdai Hills** are the centre, the region from which flow the **Volga** to the Caspian Sea, the **Don** and **Dnieper** to the Black Sea, the **Western Dwina** and **Niemen** to the Baltic, and a tributary of the **Northern Dwina** to the White Sea. (3) The chief rivers, and hence different seas, have been very easily brought into communication by means of canals. The Caspian is thus brought into communication with the Baltic,[1] the Black Sea with the Baltic and German Ocean, the Mediterranean with the German Ocean and the Atlantic.[2] The highest part of the connecting canals is generally under 600 feet, and in no case more than 1,400 feet above sea level.

---

[1] See Introd. p. 45.

The **principal lakes** are in two great groups. One group lies round the Baltic, and includes large lakes in Russia (**Ladoga**, the largest in Europe, **Onega**, and **Peipus**), and in Sweden (**Wener, Wetter**, and **Mälar**), and a large number of small ones in Russian Finland and North Germany. The other group is situated north and south of the Alps,[3] chiefly in Switzerland and Italy, the largest in this group being only about one-third of the size of the smallest of those mentioned as belonging to the former group.

The continuous series of mountains along the north of the **Mediterranean peninsulas** has a very important effect on the **climate and vegetation** of this region, which is thus very distinctly marked off from all the rest of Europe. The mountains serve to ward off the cold winds from the north and north-east,[4] and hence the temperature here is remarkably equable all the year round. The effect of the mountains is very clearly brought out in comparing places lying to the east of the limit to which they extend with others lying under their shelter. Constantinople lies beyond that limit, and the temperature of January there is ten degrees lower than in Naples, which lies in nearly the same latitude. The broad and deep Mediterranean assists in mitigating the extremes of temperature (see p. 50).

The Mediterranean region also differs from the rest of Europe in its **rainfall**. The summers here are the driest part of the year, and in the extreme south they are almost without rain. Hence the rivers, and especially those of the south, are poorly supplied with water in summer, and many of them in that season dry up altogether. For navigation they are of little use, but, on the other hand, much needed for irrigation.

This dearth of rain and the high temperature necessarily have a great influence on the **vegetation** and occupations of the people. In the first place, pastures fit for the rearing of cattle are few and far between. Dairy produce, and in particular butter, is consequently scanty. The place of butter is, however, taken by the fruit of a tree, the **olive**, which is in every way characteristic of the Mediterranean. It is a tree peculiarly fitted by its thick leathery leaves to stand the long summer droughts, and trees and shrubs of this kind form a large proportion of the forests and plantations of the whole region, except on the moister mountain slopes. Besides the olive, **southern fruits** are the characteristic products of the Mediterranean peninsulas, these including all the members of the orange tribe (oranges, citrons, lemons, &c.), all grown on trees similar to the olive, figs, pomegranates, grapes, almonds, pistachios, and chestnuts. **Agaves**,[1] or American aloes, and **cactuses**, both fleshy plants, though introduced only after the discovery of America, have run wild everywhere, and often form the hedges round gardens.

---

[1] See p. 220. [2] See p. 184. [3] See pp. 208, 240. [4] See p. 52.

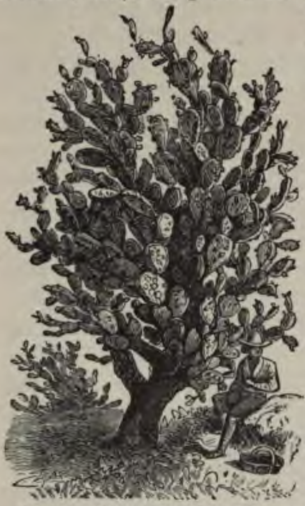


FIG. 26.—THE OPUNTIA CACTUS, OR PRICKLY PEAR.

North of the Mediterranean region, Europe is far from having a uniform climate, but the changes are more gradual; and what is most striking is the fact that these are greater from west to east than from north to south. In this part of Europe, in consequence of the influence of the Gulf Stream,[2] we see more markedly than anywhere else in the world the characteristics of the west coast climate of the northern hemisphere—cool summers, mild winters, and plentiful rains. To the east the winters become colder, the summers warmer, the rains on the whole scantier. Hence it is that while the seas on the coasts of Norway are never frozen, even within the Arctic circle, and icebergs are always kept far away from the Atlantic shores,[3] the rivers in the south of Russia (in the latitude of the middle of France) have their navigation stopped by ice for a shorter or longer period every year. The difference between east and west is even more striking when we compare the two sides of the Scandinavian peninsula.[1] The Gulf of Bothnia is frozen right across every year, so that it can be crossed by sledges; even the harbour of Christiania, at the head of the Skager Rak, is regularly closed for three or four months, and the drift ice in the Baltic is a serious hindrance to navigation till late in the spring. It must be remembered, however, that in these inland seas not only the greater cold (due to the high lands intervening between them and the Atlantic), but also the greater freshness of the water, is favourable to freezing.[2]

---

[1] See cut, p. 340. [2] See Introd. pp. 47, 51. [3] See Introd. p. 56.

The influence of the west coast climate on the growth of cultivated plants is very conspicuous. While barley can be grown in Norway as high as 70° N., the limit of its cultivation descends even on the Gulf of Bothnia to 65° N.; apples, pears, and cherries can be grown even round Throndhjem (63° N.) in Norway, but in Russia only as far north as Moscow and Kazan, in lat. 56° N. (the same as Edinburgh). Still more instructive is the northern limit of the vine, which first ascends from the west coast and then descends in the east, beginning in the west near the mouth of the Loire in 47½° N., passing by way of Paris north-eastwards to about latitude 52° in the east of the kingdom of Prussia, and then descending south-eastwards through the south of Russia to the north of the Sea of Azof and Astrakhan (about 47° N.) In the west the limit is fixed by the insufficiency of the heat of summer, in the east by the excess of cold in winter.

The easterly decrease in the amount of rainfall is less marked than the increase in the extremes of heat and cold; for the increasing cold of winter favours condensation, the increasing heat of summer favours evaporation.[3] Hence there is a more striking contrast between east and west in the period when most rain falls. In the west the rainiest season is autumn; in the east, summer. The driest parts of Europe are in the extreme south-east of Russia, where agriculture is in consequence impossible.

Regarded as a whole with reference to its **productions**, Europe is remarkable for the amount of manufactured goods which it produces and exports to other continents. This pre-eminence it owes to three causes: (1) that here the inventions by which the great manufactures are carried on had their origin; (2) that here there is a remarkable abundance of coal and iron in situations near the sea, and hence favourable to transmarine commerce; and (3) that the varied outline, so advantageous for commerce, enables Europe easily to procure supplies of the raw material used in manufactures from other parts of the world, and to send away the manufactured goods.

---

[1] See Introd. p. 52 (3) (*a*). [2] See Introd. p. 57 [3] See Introd. pp. 49–50.

The production of cereals in Europe is still, however, between two and three times as great as that of North America. The principal cereals are wheat and **rye**, the latter being the chief crop in Germany, Scandinavia, and Russia. **Oats** form the principal crop in the north-west, and **maize** in regions which have warm and sufficiently rainy summers. Where the summers are almost rainless wheat will ripen, but maize not, unless the land be irrigated.

Large wild **animals** are now found in Europe only in the more thinly peopled regions. The lion, anciently met with in the Balkan Peninsula, is now extirpated from the continent. **Bears** and **wolves** are now seldom to be seen except in the forests of the east. The **chamois** of the Alps, Pyrenees, and Carpathians is becoming rare, and the **ibex**, another mountain goat, is nearly exterminated. In the far north the **reindeer** occurs both wild and domesticated. Among the domestic animals of the southern peninsulas, **mules** and fine breeds of **asses** to a large extent replace the horses of more northerly countries. Of the **food-fishes, cod, herring**, and **salmon** are the most important in the northern seas; **tunnies, sardines**, and **anchovies** in the Mediterranean; and the **sturgeon** is the most valuable in the rivers of the east.

The **population** of Europe is still under 400 millions, though it is rapidly increasing. Its density is about 100 to the square mile, and hence much greater than that of any other continent.[1]

The regions in which the population is densest are England and the south of Scotland, Belgium and the Netherlands, Saxony, various parts of the Rhine basin, and northern Italy, in all of which the density exceeds 300 to the square mile.[2]

The rapid increase of population in Europe, together with the desire to make use of the advantages of European civilisation to develop the natural wealth of the thinly peopled continent of America and other parts of the world, has led to a constant stream of emigration, which has flowed without interruption since the discovery of America, but in this century more rapidly than ever. At first these emigrants were chiefly Spaniards and Portuguese, now they are mostly of Teutonic race (English, Germans, Scandinavians), besides Irish. Next after these come Italians, who are the chief emigrants to the South American republics. The total population of European descent outside of Europe is now estimated at seventy millions.

The immense majority of the people speak languages which are allied to one another, and are hence inferred to be all modified forms of the same language (now long extinct). The people speaking these languages may also be presumed to be mainly (though not wholly) of the same descent. These allied languages are called **Aryan**, and the people speaking them are said to be of the Aryan stock. The original home of the Aryan peoples is believed to have been somewhere in Asia, and Europe seems to have been occupied by successive bands of Aryans, each of which had a language differing more or less from that of the others. Hence **the Aryan languages are divided into families** or smaller groups, three of which are now spoken by about 300 millions of the inhabitants of the continent. These three great European families of Aryan languages[1] are **(1) the Teutonic**, in Germany, Scandinavia, Denmark, the Netherlands (including part of Belgium), and the British Isles; **(2) the Romance**, in certain countries where Roman influence formerly prevailed (Italy, the Iberian Peninsula, France, and part of Belgium, Roumania, &c.); **(3) the Slavonic**, in the east and south-east.

---

[1] See table, p. 62.
[2] See table, p. 354.

Less important Aryan families in Europe are the Keltic, now confined to certain isolated districts in the British Isles and France; the Hellenic, in part of the Balkan Peninsula and in the Grecian Archipelago; and the Lithuanian, in part of Russia.

Among **non-Aryan** peoples, the most important are those speaking the languages known as **Finno-Tatar**, including those of the Finns and Lapps in the north, the Magyars in Hungary, the Turks, and many tribes in Russia. A small but very interesting race is that of the **Basques**, on both sides of the Western Pyrenees, that race being a remnant of very ancient inhabitants of Europe, and speaking a language quite peculiar.

As regards **religion**, the bulk of the inhabitants of Europe profess different forms of **Christianity**. About half of these are Roman Catholics (chiefly in southern Europe), and the remainder are nearly equally divided between Protestants (chiefly in the Teutonic part of the continent) and adherents of the Greek Church (in Russia and the Balkan Peninsula). **Mohammedanism** is the religion of the Turks and some other inhabitants of Eastern Europe, and there are between five and six million **Jews** scattered through the different countries (chiefly in the East).

---

[1] See also Asia, p. 261.

THE BRITISH ISLES.

Approximate latitudes: (Winnipeg), Lizard Point, the southernmost point of England, (Prague) 50° N.; South of Shetland Islands, (St. Petersburg), 60° N.

Approximate longitudes: 11° W. to 2° E.

THE British Isles are made up of the two large islands of **Great Britain and Ireland**, together with numerous small islands lying near. Great Britain, the larger of the two, consists of **England** in the south, **Scotland** in the north, and **Wales** in the west of England. Being now under one government they are frequently known by the name of **The United Kingdom**, when they are spoken of as one.

These islands lie to the west of the mainland of Europe, and are surrounded by the shallow seas which have already been mentioned (p. 123) as extending for some distance beyond the west of Ireland. Their relation to the continent of Europe is thus similar to that which Tasmania bears to Australia. The **North Sea or German Ocean** is at its widest part about 400 miles in width, or about three times as broad as the wider parts of Bass Strait, but at the narrowest part of the seas severing England from the continent the width is only about one-sixth of the distance between the nearest points of Australia and the island of Tasmania. These narrow seas between England and the continent form the **Strait of Dover**, which separates the opposing chalk cliffs of England and France and forms the communication between the **English Channel** and the North Sea. The **Irish Sea**, which separates Ireland from the north of England, is narrower but somewhat deeper than the North Sea, though it also is of only trifling depth compared with the ocean.

The total area of the British Isles, large and small, is rather more than 120,000 square miles; that of Great Britain alone about 84,000 square miles, and with all its adjacent islands about 90,000 square miles, or, roughly speaking, equal to that of the Australian colony of Victoria.

The character of the surface, which differs considerably in the two chief islands belonging to the group, is described in the separate sections devoted to Great Britain and Ireland, but with regard to the coast-line it is specially worthy of note that in both islands this is remakable for its irregularity, and for the numerous bays, estuaries, and other inlets affording excellent accommodation for shipping.

In the case of Great Britain in particular it is likewise worthy of note that the coast-line runs inland at several points nearly opposite to each other in such a manner as to bring important seaports on opposite coasts within a comparatively short distance. Bristol and London are thus brought within little more than 100 miles of each other in a direct line, Liverpool and Hull are separated by about the same distance, and Glasgow and the nearest seaport on the Firth of Forth by only about twenty-five miles.

The **climate** of the British Isles is peculiarly favoured by the warm currents and warm winds from the south-west which prevail in this part of the world (see pp. 41, 50, 156), and answer to the north-west winds of South Africa and Western Australia (pp. 76–7). It is owing to these influences that Great Britain and Ireland, though lying in latitudes in which in the southern hemisphere cold and fog prevent almost all kinds of cultivation, enjoy a climate as mild as that of the cooler parts of the Australasian colonies and much more equable. In the south-east of England, which is the region containing the greatest extent of land fit for cultivation, the crops grown are the same as in Tasmania, which is about ten degrees nearer the equator. Wheat is there the crop most widely grown, but certain districts in England (especially in the county of Kent, in the extreme south-east) are noted for their hops and their orchard-fruits. In Wales and the West of England, in Scotland and in Ireland, the climate is in general too cold or too moist for wheat, and oats are there the principal corn-crop. Agriculture in general is highly advanced in Great Britain, where on an average a greater number of bushels of wheat is grown to the acre than in any other country.

The **products** for which the United Kingdom is most noted, however, are not those of its soil, but those of its mines and **factories**. As a manufacturing country it takes the lead among all the countries of the world, and this position it owes in a great measure to its wealth in the useful minerals **coal** and **iron**, and the ease with which they can be worked. The extent of the British coal-fields is indeed only a small fraction of the extent of those of the United States, but it is greater than that of the coal-fields of any other European country except Russia, and the quality of the coal is excellent. Moreover, the coal is found everywhere in a convenient situation, in low grounds and near the sea. From the form of the country it follows as a necessity that the coal-fields could not at any part be very far from the coast, but more than one of the richest of the British coal-fields lies (including that which supplies the excellent steam-coal of South Wales) close beside a great seaport, so that the produce of the mines can be sent to other parts of the country in the cheapest manner possible. With the same cheapness, too, raw materials for manufacture can be brought from a distance to the factories established on or near the coal-fields and the products of manufacture sent away.

The advantage of this wealth in conveniently situated coal is more than doubled by the extent of the deposits of **iron ore**, and by the fact that some of these deposits are found in the very districts in which coal can be obtained to smelt the ore, and others close beside great seaports, even though they do not lie in coal-yielding districts.

In consequence of this great development of manufacturing industry the chief exports of the United Kingdom are manufactured articles, the chief imports articles used as food which cannot be produced in sufficient quantity at home for the large manufacturing population, and next to these the raw materials of manufacture. Of the **exports** by far the most important are **cotton manufactures**, and the next in importance **articles made of iron and steel**. Of cotton cloth there is exported every year considerably more than 100 yards for every inhabitant of the United Kingdom, equal to about three yards for every inhabitant of the globe, according to the best estimates of the population. The **principal imports** are **grain**, and above all wheat and flour, **raw cotton**, and wool, the last derived chiefly from the Australasian colonies. Live animals and dead meat, dairy produce, all kinds of fruit, sugar and tea, are also largely imported. Cattle and dairy produce are likewise sent in great quantity to Great Britain from Ireland. As the latter island possesses none of the richer coalfields or iron-ore deposits of the United Kingdom, it does not share to any great extent in the manufacturing industry of the country. Only one branch of manufactures flourishes there in a high degree—namely, that of **linen**, which at the present day is mainly pursued in the north-east of Ireland, where coal and iron are procured through the port of Belfast.

Historically the importance of coal and iron to Great Britain is shown by the fact that it is only since last century, when coal came to be used in the production of iron, and machinery for carrying on manufactures was invented, that this country attained the lead in manufacturing industries which it still possesses. Formerly wood or charcoal was used in the smelting of iron, and many a forest in England was laid waste in supplying fuel for this purpose. As late as the early part of last century Germany, which was, as it still is, richer in forests than England, was ahead of England in the production of iron, and it was only after coal began to be used in smelting iron, shortly before the middle of the same century, that this was changed. Near the close of the century again the great inventions of machinery (all made in England) greatly increased the use of iron and afterwards of coal, and at a later date the introduction of steam railways multiplied the use of these minerals still further. The invention of locomotives driven by steam was also of English origin (first applied in 1825), and for the rapid extension of railways Great Britain had the important advantage that from its form comparatively short railways could bring the heart of the country into communication with many great seaports.

The extent of the foreign commerce of the United Kingdom is due not merely to the nature of the industries pursued there. The islands which make up that country besides having, as already shown (p. 161), a coast-line highly favourable to shipping, have another great advantage for foreign commerce, in the fact that they lie nearly in the middle of the land surface of the earth. This helps to explain why such articles as wool, raw cotton, coffee, tea, &c., are brought to this country in large quantity only to be sent away again to those in which they are consumed or used. One-fifth of the whole value of British exports is the value of articles that have first been imported from abroad, and have undergone no change in this country before being re-exported.

The advantage of this geographical situation is likewise shown historically. Before the discoveries of the fifteenth and sixteenth centuries Great Britain was on the outskirts of the then known world instead of in its centre, and the commerce of the country has rapidly increased as the lands then and afterwards discovered have become more and more thickly peopled.[1] It is only since about the middle of last century that the foreign commerce of the British Isles has been the largest in the world. About one-fourth of the entire marine commerce of the country is carried on with the British colonies and dependencies, and more than two-fifths of that commerce is with these and the great English-speaking nation of the United States.

The **shipping** of the United Kingdom is even more extensive than its commerce, for multitudes of British ships are employed in carrying merchandise from one foreign port to another. The total tonnage of British vessels is at least eight times as great as that of any other European country, and not far short of twice as great as that of the whole shipping of the United States, including river boats and steamers.

The total **population** of the British Isles at the census of 1881 was upwards of 35 millions, which gives a density of about 290 to the square mile.

Of that total about 26 millions, or nearly three-fourths, belonged to England and Wales, 3¾ millions to Scotland, and a little more than five millions to Ireland. Since the census of 1841 there has been a constant decline in the population of Ireland in consequence of the rapid migration of the inhabitants to Great Britain and emigration to countries beyond the Atlantic. In recent years the total number of emigrants from the British Isles has averaged nearly a quarter of a million annually. Among these the Irish element predominated down to 1867.

The **government** of the British Isles is called a **limited monarchy**. The head of the state is a king or queen, whose dignity is hereditary; but the power of the king or queen is limited by the fact that all laws are passed by a body called a Parliament, while they are carried out by ministers responsible to Parliament.

The Parliament, which has been adopted as the model for the legislative assemblies of many of the British colonies and even to some extent those of foreign countries, consists of two Houses, one, the **House of Peers**, composed mainly of hereditary members; the other, the **House of Commons**, composed of elected members. The members of the latter house are returned partly by old divisions of the country called 'counties'[2] (or subdivisions of counties), partly by towns which are known as 'parliamentary boroughs.'

---

[1] Comp. Italy, p. 242, and Germany, p. 199 (under Augsburg and Ulm).

[2] A name which has been adopted for internal divisions not only in many of the British Colonies, but also in the United States.

Education under State supervision was till recently in a backward condition in all parts of the kingdom, but it is now compulsory throughout Great Britain, though not yet in Ireland. For the higher education there are eleven **universities**, the most famous of which are, in England, those of Oxford and Cambridge, two very ancient seats of learning; in Scotland, those of Edinburgh and Glasgow; and in Ireland that of Dublin.

The majority of the people in Great Britain are **Protestants**, in Ireland **Roman Catholics**, and most of the Roman Catholics both in England and Scotland are of Irish origin.

The **British Empire**[1] is composed of the British Isles and a large number of colonies and dependencies scattered over the globe.

The more important colonies have all Parliaments of their own and are completely independent, except that they acknowledge the supremacy of the English Crown, the authority of which is represented by a governor, whose signature is required for all laws passed by the colonial parliaments. Some of the others are governed by officers appointed directly by the **Crown**, and are hence known as **Crown Colonies**. British India is a dependency of the Crown with a peculiar form of government. The following table contains the names of the principal parts of the British Empire, with other particulars regarding them:

Name	Area in thousands of sq. miles	Ratio to Great Britain	Population in millions (1891)	Date of Acquisition or Annexation to older colony
British Isles	122	—	39	—
British India:—				
Under direct British rule	965[2]	$10\frac{2}{3}$[2]	221	1625–1886
Native States	595	$6\frac{1}{2}$	66	
Ceylon	25	$\frac{1}{3}$	3	1796
North Borneo (protectorate)	98	1	0·55	1881–88
Cape Colony and its Dependencies in South Africa	277	3	2·0	1806–94
Natal	32	$\frac{1}{3}$	0·7	1843–77
South African Protectorate, &c.	354	4	0·6	1871–85
British East Africa	1,000	12	?10	1885–95
Nigeria and West African Colonies	650	$7\frac{1}{2}$	?40	1664–1884
Dominion of Canada	3,470	39	4·8	1623–1760
Newfoundland	43	$\frac{1}{2}$	0·20	1583
West Indies and Bermudas	13	$\frac{1}{7}$	1·37	1605–1803
British Guiana	85	1	0·27	1803
Australia	2,945	33	3·0	1787
New Zealand	104	$1\frac{1}{6}$	0·67	1841
Tasmania	26	$\frac{3}{10}$	0·14	1803

---

[1] This is only a popular designation. By law the Queen bears the title of Empress only in relation to her Indian dominions.

[2] Including Burma.

Among the minor possessions of the British Crown or territories now occupied by the British are: **in Europe**, the two small islands of Malta and Gozo, and the rock of Gibraltar; **in Asia**, the Straits Settlements on the Malay Peninsula, Hong-Kong with a portion of the adjacent mainland in China, Aden in the south-west of Arabia, Socotra and some smaller islands off the coast of Arabia, Labuan off the north-west of Borneo, Cyprus (under British administration since 1878); **in Africa**, the Orange River Colony and various islands in the Atlantic and Indian Oceans (see pp. 150–51); **in America**, British Honduras (acquired in 1670), and the Falkland Islands, including South Georgia; **in Australasia and Polynesia**, a portion of New Guinea (see p. 316), the Fiji Islands, and various other small islands. At present Egypt with the Egyptian Sudan is practically under British control. The total area of the British Empire, the largest in the world, is upwards of eleven millions of square miles, and the population approaches 400 millions.

GREAT BRITAIN.

GREAT BRITAIN consists mainly of one large island more than one-third of the size of Cape Colony, but includes also a large number of smaller islands in the adjacent seas. It is divided on historical grounds into the two ancient kingdoms of **England** and **Scotland** and the so-called principality of **Wales.**[1] The last-mentioned region consists of a hilly and even mountainous tract of country in the west, between the Bristol Channel and the estuary of the Dee, and owes its separate name to the fact that here the ancient British or Keltic inhabitants of the country remained longest unsubdued by the Germanic races (Angles, Saxons, and other tribes) who founded the kingdom of England. The people were finally conquered by the English about seven hundred years ago, and their country was completely united to England, but many of the inhabitants still speak a Keltic dialect known as Welsh. Since the conquest the eldest son of the king or queen of England has always borne the title of Prince of Wales.

England with Wales makes up two-thirds of Great Britain. The remainder belongs to Scotland, which was a separate kingdom until in 1603 the king of Scotland succeeded by descent to the crown of England. Even then the union of the two countries consisted only in their having the same sovereign. Their parliaments remained separate for more than a hundred years later, and even yet Scotland has its own law with its own courts to administer the law, and its own church.

---

[1] *Wales* and *Welsh* are not names originally used by the people of Wales. *Welsh* is the name applied by those who speak a German language to those who do not, and properly means simply *foreign*.

The boundary between England and Scotland on the mainland is a line stretching from near the mouth of the Tweed, along the crest of the range of grassy hills called the **Cheviot Hills**, to the lowlands at the head of the estuary of the Solway, where the surface was formerly occupied by morasses.

Such hills and morasses formed in remote times a natural boundary between two countries, the chief part of whose population has always been settled at some distance from this boundary. In Scotland the bulk of the inhabitants have always occupied the lowland area extending between the great estuaries of the Forth and Clyde and stretching to the north-east and south-west of these estuaries. In England again the nearest districts with a tolerably dense population are the fertile valleys of the Eden and the Tyne, that of the Eden in the west with Carlisle in its centre, that of the Tyne in the east. Hence it is not surprising that in former days, when communications were bad, a separate kingdom should have had its centre in the northern lowlands.

It is to Scotland that by far the greater number of the small islands of Great Britain belong, these lying chiefly on the west. Many of these are separated only by narrow channels, here called 'sounds,'[1] from the mainland, and these are known as the **Inner Hebrides.** Among these is the small island of Staffa, noted for its caves, of which the most remarkable is **Fingal's Cave**, with its flat-sided basaltic columns. Further out lies a long string of islands called the **Outer Hebrides**, a group in which the surface is mainly low, the soil boggy and unfruitful, the climate damp and foggy, and in which accordingly the scanty population depends largely on fishing. To the north of Scotland beyond the stormy channel known as the **Pentland Firth** are situated the **Orkney** and **Shetland Islands**, in which also fishing is one of the mainstays of the people.

To the southern part of Great Britain there belong only three smaller islands of importance. One of these is the **Isle of Wight**, which is separated from the south coast of England only by two narrow channels, an island noted for its quiet beauty and its mild climate. Another, the Isle of Anglesey,[2] forms one of the counties of Wales, from the mainland of which it is divided by the **Menai Strait**, which is narrow enough to be crossed by two bridges. The third is the **Isle of Man**, which lies in the Irish Sea, almost equally distant from England, Scotland, and Ireland.

---

[1] A Scandinavian name, Scandinavians having made many settlements in these parts of Scotland.

[2] Also a Scandinavian name, meaning *Isle of the Angles.*

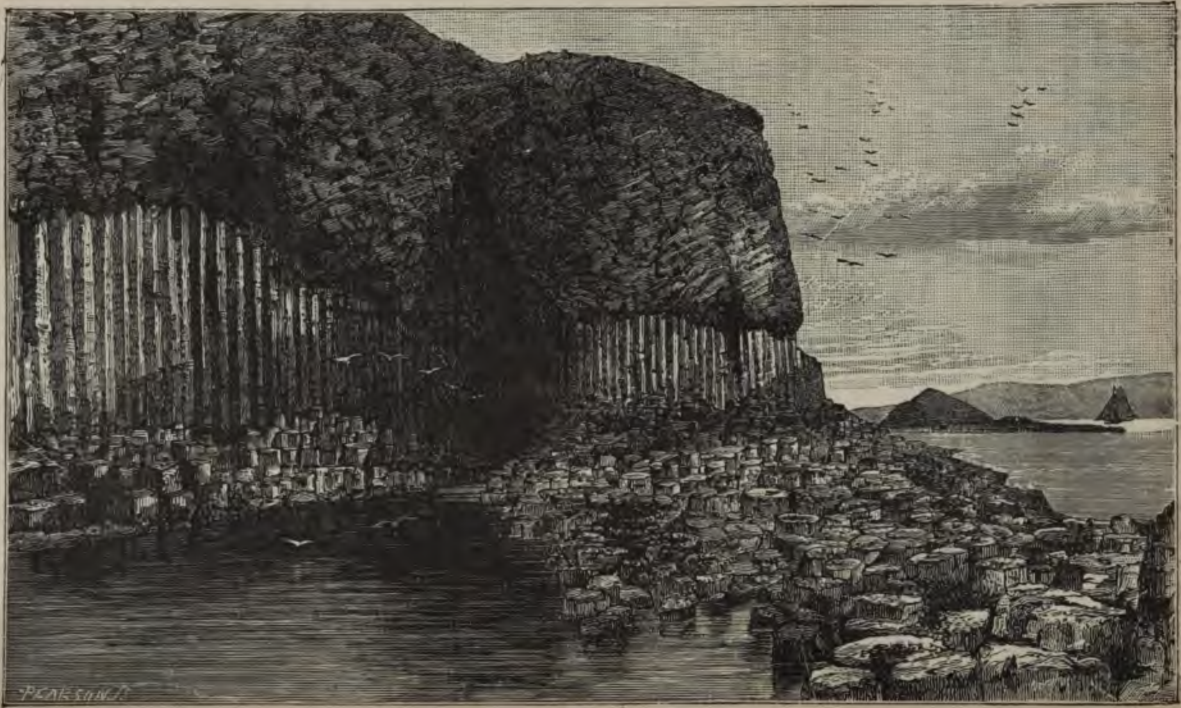


FIG. 27.—FINGAL'S CAVE.

The **surface** of Great Britain is very varied. The most mountainous part is the north-west of Scotland, which is hence known as the **Highlands of Scotland**, a region filled with hills, mountains, and valleys, running in various directions. It is divided into two portions by a depression known as **Glen More**,[1] or the Great Glen, running from Loch [2] Linnhe in the south-west to the Moray Firth in the north-east, and partly occupied by lakes connected with each other and with the sea by a ship-canal, which is not, however, much used. Near the south-western end of this depression is situated **Ben Nevis**, 4,400 feet high, the highest mountain in the British Isles, though 2,500 feet lower than the highest summit in Australia, and nearly 8,000 feet below the height of the loftiest in New Zealand (see pp. 67, 110). The group of mountains to which it belongs is known as the **Grampians**, a group far too irregular to be properly spoken of as a mountain range. Many of the valleys in the highlands of Scotland are occupied by beautiful lakes. Of these the most celebrated are **Loch Lomond** and **Loch Katrine**, which have been made by the novels and poems of Sir Walter Scott familiar in the mouth as household words wherever the English language is spoken.

The boundary of the highlands of Scotland and the limit of the Grampians is a line stretching from south-west to north-east from the mouth of the estuary of the Clyde to a point near the middle of the east coast of Scotland, but lowlands also occupy the peninsulas which jut out in the east, as well as the shores of the **Moray Firth**, the great opening that lies between these peninsulas.

As stated already in describing the boundary between England and Scotland (p. 167), hilly country extends southwards as far as the valleys of the Eden and the Tyne. To the south of these valleys hilly country is again met with. A range of moorlands and hilly sheep pastures known as the **Pennine Chain** stretches southwards into the heart of England, but though it separates fertile plains in the east and west, it is sufficiently low to be easily crossed not only by railways but even by canals, so that it is possible for barges to be towed along navigable rivers and canals from the estuary of the Mersey in the west to that of the Humber in the east. West of the northern part of the Pennine Chain is a group of hills with valleys occupied by beautiful lakes, forming what is known as the **Lake District** of England, a great resort of poets, artists, and tourists. Here lie **Keswick Lake**, or Derwent Water, and **Lake Windermere.**

---

[1] *More* means *great* in Gaelic, a dialect of Keltic still spoken to some extent in the highlands and islands of Scotland.

[2] A Scotch name meaning either a lake or a long inlet from the sea.

The **south-western peninsula of England**, which runs out to **Lizard Point** in the extreme south and **Land's End** in the extreme south-west, two bold rocky headlands, is mainly composed of low hills, moorlands, and pasture lands, and derives its chief wealth from its mines of tin, lead, and other metals for which it has been celebrated from ancient times.

The **south-east of England** as a whole is a region of plains and gently undulating lowlands, and, as already intimated (p. 161), contains most of the best agricultural land of the country. In the neighbourhood of the Wash, the region known as the **Fen Country**, the surface is so low and flat that it requires to be protected in some places against the sea, and has been made capable of cultivation only by the most careful drainage.

To the south-east of England belong all the chief **rivers** of the country except the Severn. The **Thames**, the longest and most important of all, rises within a few miles of the estuary of the Severn, and flowing eastwards enters the German Ocean by a magnificent estuary which can be ascended as far as the London Docks by the largest vessels afloat. The estuary of the **Humber**, which is likewise well suited for ocean commerce, receives at its head the **Trent**, which drains the midland counties, and the **Ouse** which flows southwards through the fertile vale of York, and receives numerous tributaries from the dales which cut through the moors of the Pennine Chain on the west. The **Severn** takes its rise in the heart of Wales, and sweeping round to the east traverses some of the finest English counties, but unfortunately terminates in a shallow estuary the navigation of which is much impeded by sandbanks.

Towns in England and Wales.— 1. Seaports and Coast Towns.— LONDON, the capital of England and of the British Empire, is situated at the head of navigation for large vessels on the Thames, a situation all the more important because the estuary of that river directly faces that of the Scheldt, the great continental estuary which leads up to the seaport of Antwerp. It hence early became an important seat of

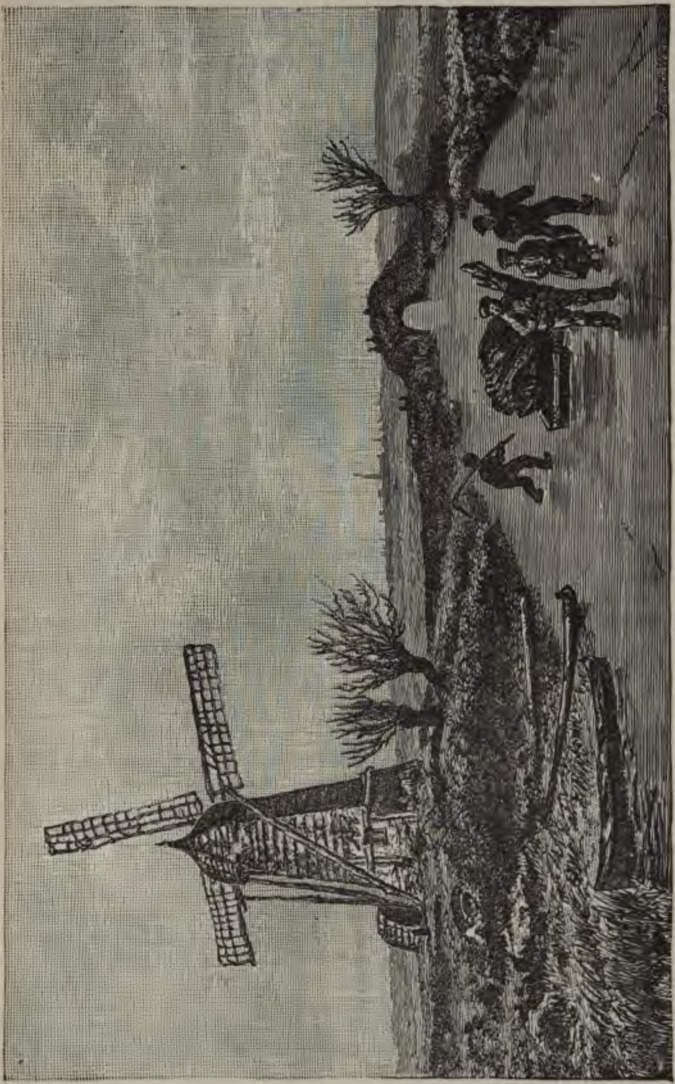


FIG. 28.—WINTER SCENE IN THE FEN COUNTRY. (From Heathcote's 'Fen and Mere,' by kind permission of the Author.)

foreign commerce, as well as the centre of inland commerce between the north and south of England. Since the time of William the Conqueror it has been the virtual, if not always the recognised, capital of the country, and as the country grew in wealth and power, so also did London grow in size and importance. As the commerce of the country became world-wide, so also above all others became that of the port of London. In its growth it has come to embrace many surrounding cities and towns, the most important of which is the ancient city of **Westminster**, which lies, like the city of London proper, on the left bank of the Thames in the county of Middlesex; and now London in the larger sense, including all the contiguous boroughs returning members to parliament, has a population of more than four millions. As capital of the country it is the seat of the supreme courts of law, the houses of parliament, one of the royal palaces, one of the palaces of the Archbishop of Canterbury, of the chief public libraries and museums. As a seaport it may be mentioned that one of its chief imports is Australian wool. **Greenwich**, one of the parliamentary boroughs included in London, is the seat of the royal observatory, the meridian of which has now been adopted by most civilised countries as the starting-point in reckoning degrees of longitude. Lower down on the south side of the estuary of the Thames are important towns possessing arsenals and government dockyards as well as watering-places.

HULL, on the north side of the estuary of the Humber, nearly opposite the continental estuaries of the Elbe (with Hamburg) and the Weser (with Bremen), the point of convergence of the railways belonging to the valleys of the Trent and Ouse and their tributaries, has a large trade with the continent of a very general nature. The estuary of the Tees further north is of less consequence, but in recent years has become noted for one special product, iron, abundant ores of which have been found on its southern shores, and have raised into importance the town and seaport of **Middlesbrough**. **NEWCASTLE**, at the head of sea-navigation on the Tyne, has been noted for another special product, coal, for a much longer period, and for that reason has given name to other towns elsewhere, such as Newcastle in New South Wales, rich in the same mineral. The coal-fields round about supply domestic coal of the best quality, which is exported to many parts of the world. A constant stream of steamers laden with coal proceeds along the east coast from the Tyne for the supply of London alone.

South of London the port of **Dover**, which occupies a notch in the chalk cliffs here forming the English coast, has long been celebrated as the starting-point of the shortest passage to the mainland of Europe (the Dover-Calais route). **Hastings**, on the south coast, formerly a seaport, is now only a watering-place and fishing-station. Historically it is celebrated as giving name to the battle in which William the Conqueror defeated Harold of England in 1066, though the battle was actually fought at a place a few miles distant. **BRIGHTON**, further west, has become within the last century the most celebrated of all English watering-places, the ease with which it can be reached from

London being one chief cause of its being so largely frequented. Still further west, nearly opposite the eastern end of the Isle of Wight, stands **PORTSMOUTH** on a deep and spacious natural harbour with an easily defended entrance, on which account it has been one of the chief naval stations of England since the time of Henry VIII. in the sixteenth century. **Southampton**, at the head of the inlet which forms a continuation of the channel on the north-east of the Isle of Wight, is the busiest mercantile port in this region. **Plymouth** and **Devonport** form together another arsenal and royal naval station occupying an inlet in the south-west (between the counties of Devon and Cornwall), equally spacious and easily defended with that of Portsmouth, and much more beautiful.

On the west coast the principal seaport down to last century was **BRISTOL** (250[1]), on the Lower Avon, six miles above its mouth in the Bristol Channel. Lying nearer than Liverpool to the West Indies and the American mainland, and nearer also to London, it was more favourably situated than the latter port for commerce with the west before the development of manufacturing industry increased the population in the northern counties. Being situated on a coal-field it is in itself a manufacturing town. On the opposite side of the Bristol Channel, **Cardiff** in South Wales has rapidly risen into importance on account of its vicinity to a great coal-field, the coal from which is smokeless and well adapted for steamships and for smelting, so that Cardiff now exports more coal, and that of greater value per ton, than Newcastle. **Swansea**, further west, lies on the same coal-field, and has probably the largest smelting industry in the world, ores being brought from all parts of the globe (copper ores, for instance, from South Australia) to be smelted here. The old Roman city of **Chester** on the Dee stands on too shallow a river to be of much importance as a seaport at the present day, and now by far the most important seaport on the west coast is **LIVERPOOL** (600) on the estuary of the Mersey. This estuary is broad and deep, but its shores are low, so that docks had to be constructed in order to provide wharfs. Hence as late as the beginning of last century Liverpool was little more than a village, and not till the great cotton industry developed in the neighbourhood did it grow into the great seaport that it is—the rival of London, possessing six or seven miles of continuous docks, a sight unparalleled elsewhere. Importing grain and other food products, cotton and other raw materials of manufacture, it sends out manufactured articles to all quarters of the globe.

2. **Inland Towns.**—The chief inland towns of England are great manufacturing and commercial centres, and are almost all situated on coal-fields on which different branches of industry are carried on. **MANCHESTER** (including Salford, 600), on a small tributary of the Mersey, has long been famous for its woven fabrics, and for about a century as the centre of the cotton manufacture, which is carried on in a large number of towns round about. By means of a ship-canal 35½ miles long, with a minimum depth of 26 feet and a bottom width of 120 feet (48 feet more than that of the Suez Canal), opened on January 1, 1894,

---

[1] The population is in every case that of the present parliamentary borough.

this city has been converted into a seaport. Of the manufacturing towns surrounding Manchester the largest is **OLDHAM**, which is noted not only for its cotton manufactures, but also for the making of machinery for cotton and woollen mills. Almost all the cotton-manufacturing towns belong to a coal-field on the west side of the Pennine Chain in the county called Lancashire. On the east side of that range, in the south-west of Yorkshire, is another large coal-field, the towns on which are chiefly engaged in the woollen manufacture, for which the adjacent sheep pastures at one time supplied the bulk of the material. The most important of these towns are the adjacent towns of **LEEDS** (310) and **BRADFORD**. Further south on the same coal-field, in a district yielding also excellent irons and a kind of stone admirably suited for making grind-stones, stands the town of **SHEFFIELD**, which has for these reasons long been noted for its cutlery. Steel in all shapes, and not merely cutlery, is now the product with which the name of Sheffield is most properly associated. Still further to the south or south-east stands **NOTTINGHAM**, on the Trent, with manufactures of lace and hosiery.

Other coal-fields lie in the heart of the country between the Trent and the Severn. In the south of this area lies **BIRMINGHAM** (440), the world-renowned centre of all kinds of hardware manufacture, though it is only the chief of many adjacent towns engaged in the same industries, which are fostered by the presence of abundance of iron as well as coal. In the north of the area is the district known as the **Potteries**, from the fact of its being occupied by several towns engaged in the manufacture of earthenware. For this industry the neighbourhood furnishes many suitable kinds of clay, though the finest kinds have to be sent from the south-west of England.

Among the towns that owe their celebrity to other causes than their manufacturing industries may be mentioned **Stratford-upon-Avon**, the place of birth and death of Shakspere, on the Upper Avon, a tributary of the Severn; **Bath**, on the Lower Avon above Bristol, noted even in Roman times for its hot medicinal springs; and **Windsor**, on the Thames, a favourite residence of the kings and queens of England.

Towns in Scotland.—The only inland town of great importance in Scotland is **EDINBURGH** (230), the capital, near the south shore of the Firth of Forth, a city celebrated for the beauty of its situation and for its great medical school. Though strictly speaking an inland town it is as closely connected with its port, **Leith**, as Melbourne is with Port Melbourne. A few miles above Edinburgh, near the narrowest part of the Firth of Forth, a railway bridge has been constructed across that estuary. On the Clyde on the west side of the country stands **GLASGOW** (512, with suburbs upwards of 700), now the chief seaport in Scotland and one of the largest manufacturing towns in the United Kingdom. The river on which it stands was formerly only a shallow stream at this point, but the discovery not only of rich coal-fields, but of abundant deposits of the finest iron ores, developed manufacturing industries of various kinds to such an extent that it became worth while to deepen the river so much as to allow of the ascent of the largest trading steamers. The existence of these minerals has likewise made the Clyde the greatest seat of shipbuilding in the world since iron and steel came to be used as the chief materials for the purpose. Lower down on the south shore of the estuary of the Clyde stands the port of **Greenock**, which has a large sugar industry. **DUNDEE**, on the north side of the estuary of the Tay, here crossed by a railway bridge, is a seat of jute and linen manufactures (including sailcloth). **Perth**, higher up on the Tay, was one of the early capitals of Scotland, but is now of minor importance. **ABERDEEN** is an important seaport and manufacturing and university town at the mouth of the Dee, on the east coast.

IRELAND.

IRELAND is an island about one-fourth larger than Tasmania. With this latter island it agrees in having a very irregular coast-line, but the character of its surface is very different. The greater part of Ireland is a low-lying plain. The mountains belonging to it are mostly collected in groups or short chains near the corners. The highest summit belongs to the Macgillicuddy Reeks in the south-west of the island; a range which, though short, boasts a greater renown than many a longer and loftier chain from the fact that it overlooks the beautiful **Lakes of Killarney**, an annual resort of thousands of tourists.

So level is a large part of the surface of Ireland that the natural drainage of the country by its rivers is very imperfect. Excess of moisture ruins a large part of the soil. **Nearly a tenth of the entire surface is occupied by bog**, the western counties, which are directly exposed to the westerly rain-bearing winds, suffering most in this respect. Nevertheless, there are large tracts elsewhere possessing great natural fertility.

The principal river is the **Shannon**, the longest river not only in Ireland but in the British Isles. It flows sluggishly from north to south through three considerable lakes, and finally turns westwards and enters the Atlantic Ocean.

Manufacturing industries being few, for the reason stated on p. 163, the greater part of the population is engaged in agriculture, but the state of agriculture is more backward than in any other part of the British Isles.

Besides being divided like Great Britain into counties Ireland has long been divided into four chief sections, called provinces. These are—**Ulster** in the north-east, **Leinster** in the south-east, **Munster** in the south-west, and **Connaught** in the north-west.

Of these Ulster, in which a large proportion of the inhabitants are Protestants descended from English and Scottish settlers, is the part of Ireland in which agriculture and other industries are most advanced. The Irish proper are a Keltic race, and many of them still speak a Keltic dialect (see p. 166).

Chief Towns.—The capital is **DUBLIN** (including suburbs, 350), at the mouth of the **Liffey**, and the head of a fine bay in the middle of the east coast. It formerly carried on various branches of manufacture, but now the only products for which it is noted are whisky and porter. **BELFAST** (208) at the head of Belfast Lough is the chief town in Ulster, the great seat of the Irish linen manufactures, the only great manufacturing town in the island, and the only one with a rapidly increasing population. **Londonderry**, at the head of Lough Foyle in the north of Ireland, is a place of historical note, but the inlet on which it stands is too shallow to allow of its being reached by large vessels. **Cork**, at the head of a fine estuary on the south coast, is the third town in Ireland in point of population, and a place of export for the produce of the surrounding district, principally butter. **Queenstown** (so named in honour of Queen Victoria), on a small island within the estuary, is noted as a place of call for ocean-going steamers.

FRANCE.

Approximate latitudes: (Dover), north point of France (Leipzig), 51° N.; Paris, Nancy, 49°; Rochefort, Mont Blanc (Trieste), 46°; middle of Pyrenees (Balkan Mountains), 43°.

Approximate longitudes: Cape La Hague, mouth of Loire, 2° W.; Havre, 0°; Nancy, Toulon, 6° E.

France is a country more than twice as large as the colony of Victoria, lying between the Atlantic Ocean and the Mediterranean Sea, and separated from Spain on the south by the **Pyrenees**, from Italy on the south-east by the **Alps**, from Switzerland mainly by the **Jura Mountains**, and from Germany partly by the Vosges.

The surface is made up in the western half mainly of level plains and gently undulating lowlands, but it rises in the east. Towards the south-east there is a broad plateau about 3,000 feet in height, and its steep south-eastern edge is surmounted by a range of mountains called the **Cevennes**. On this plateau the **Loire**, the longest river in France, takes its rise in two large headstreams (the Loire to the east and the Allier to the west) which flow northwards in deep valleys; and the fact that these two great valleys, containing the most densely populated parts of the plateau, open out on the most important part of the French plain, is another circumstance of great consequence in promoting the unity of the French people. Round **Clermont** the Valley of the Allier expands into a broad upland plain, the **Limagne**, one of the most richly cultivated districts in France, a district the fertility of which is all the more striking from the contrast it presents to the desolate tablelands adjoining. Of these tablelands, that on the west, forming the **Plateau of Auvergne**, is one of the wildest parts of France, and at the same time one of the most remarkable in its scenery, being crossed from north to south by a line of long extinct volcanoes (**Puys**), the craters of which are still in most cases quite distinct.

The **northern highlands** of France are under 1,500 feet in average elevation, and are generally also plateau-like in character. The heights between the depression marked by the Canal du Centre and that marked by the Burgundy Canal take

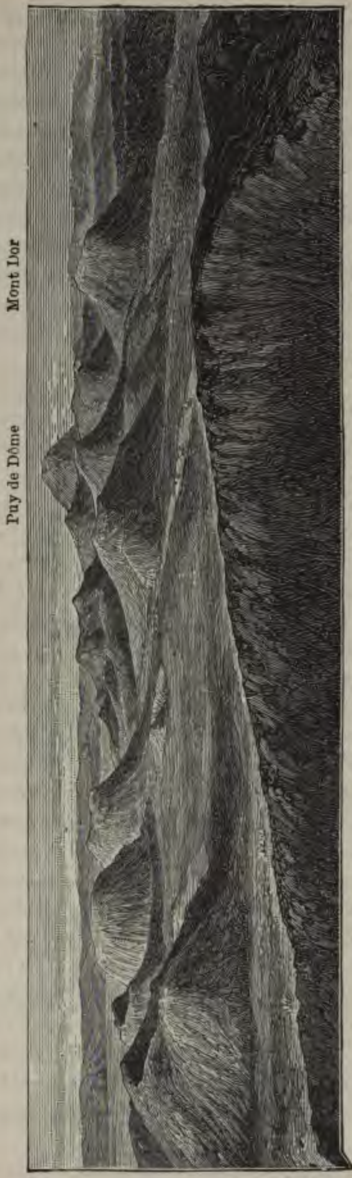


Fig. 29.—View of the Monts Dôme from the Summit of the Puy Chopine, Auvergne.

the name of **Côte d'Or** (Gold Coast), from the fact of having their eastern flanks clothed with the rich vineyards that produce Burgundy wine. To the north lies the **Plateau of Langres**, which is connected with the Vosges by the **Faucilles**, a sickle-shaped ridge, concave on the south. Further north follow the Ardennes, once a vast forest, of which the chief relic is the **Forest of Argonnes**.

The **western highlands**, those of Brittany and the west of Normandy, are under 1,000 feet in average height, and are not so much plateau-like in character, but rather like the highlands of Britain, a succession of ridges running in all directions and opening into one another.

For an account of the frontier mountains of France, see ALPS, SPAIN, and SWITZERLAND.

Of the **plains** of France, the **rivers** are the most important features. The fact that the French highlands lie so far from the sea allows most of the principal rivers to develop into considerable streams with a gentle current in the lower tracts of the country. They are hence of great importance for inland navigation, as might be inferred from what has been already stated as to the connection of the principal river-basins by means of canals. The **Loire** is navigable for between 400 and 500 miles (about twice the entire length of the Thames or Severn). The **Seine** and its principal tributaries (**Marne, Yonne**) are also navigable far into the interior, and it is by means of an affluent of the Yonne that the Seine basin is connected by canal with the Saône and Rhone. The **Rhone**, flowing, unlike the other great French rivers, in a narrow valley, but amply fed by mountain torrents (on the east glacier streams), is full-flooded but impetuous, and hence, though navigable for large vessels from Lyons downwards, cannot be easily ascended. Since the opening of the Lyons and Marseilles railway, the navigation has dwindled away to a comparatively small amount. The gently flowing Saône, the tributary which the Rhone receives on the right from the Burgundian Plateau, is a marked contrast to the main stream. Altogether France has about a hundred navigable rivers, most of which have their entire course within her frontiers.

The **climate** of France exhibits the mitigating influence of the Atlantic, and its warm winds and currents in the west, but less in the east, where there are greater extremes. Hence, while the coast of Brittany has a winter mild enough for camellias, Chinese bamboos, and other plants belonging to a sub-tropical climate, to flourish in the open air, but a summer too cold and damp to be favourable to wheat cultivation, farther east, in the same latitude, the warm summers mature the fruit from which Champagne wine is made, though the winters are cold enough to kill even the holly and the gorse.

Of the **agricultural products**, **wheat** is, as in England, the principal cereal, but to the crops of England France adds, in the warmer parts, **maize**, **wine**, **sugar-beet**,[1] **tobacco**, and in the Mediterranean provinces the **olive** and **mulberry** (the latter for the rearing of silkworms). Wine is of special importance, for France is the greatest wine-producing country in the world. The chief wine-growing districts are the valley of the Garonne in the south-west, and Champagne and Burgundy in the east.

The **mineral wealth** of France is relatively small. There are **two chief coal-fields**. In the north the Belgian coal-field extends into France, and, being rich in iron, supports a dense industrial population, gathered into large towns.

Of these the chief are **LILLE**, **Roubaix**, **Tourcoing** (the two latter of recent growth), all chiefly engaged in spinning and weaving. The other coal-field, also rich in iron, is on the eastern borders of the Central Plateau, and the chief towns belonging to it are **St. Etienne** and **Creuzot**. The former is not only itself a large manufacturing town, producing chiefly hardware and silks, but also supplies with coal the still more important manufacturing town of **LYONS** (400), the leading town in Europe for the making of silk and velvet fabrics.[1]

In the **commerce** of France **wine** and **woollen and silk fabrics** are the **chief exports**, and the **chief imports** are the **raw materials** for the woollen and silk as well as cotton industries, together with **grain**. **Wool** has the first place among the raw materials, and there is no other country in the world which imports so much of this article for use in its own manufactures. Much of this wool is of Australian origin, obtained either direct or by way of Great Britain, but a very large proportion is from the Argentine Confederation and Uruguay.

The **people** of France are mainly of Keltic origin, but during four centuries of Roman domination were so completely Romanised that a Keltic dialect is now spoken only in a part of Brittany,[1] and the Latin language, altered by degrees into the modern French, has spread over almost the entire country. The Roman domination was overthrown in the fifth and sixth centuries by Teutonic invaders (**Western Goths** or **Visigoths** and **Franks**), but these settled among the civilised subjects of Rome, and in the end adopted their language. At the end of the eighth century a Frankish king, Charlemagne, extended his sway eastwards beyond France as far as Bohemia, and southwards as far as the Ebro; but his dominion did not survive him, and during the Middle Ages France was little more than an assemblage of independent principalities, nominally united under one king. This state of matters favoured the settlement of Normandy[2] by the **Normans** (Danes and Norwegians) in the tenth century, and the English conquests in the fourteenth and fifteenth centuries; and not till after the English were finally driven out did the French monarchy become strong. The fiefs or practically independent principalities became **provinces** of the French kingdom, and though these provinces are not now recognised, some of their names are still familiar, as applied to well-marked districts. Since the Revolution at the end of last century, France has been divided into **departments**, of which there are now eighty-seven. At the same time France exchanged a monarchical for a republican form of government, and though there have been several changes since then, the **government** has been **republican** since 1870. The **religion** is Roman Catholic. Elementary **education** is in a backward condition.

---

[1] See p. 194, *n.* 1.

[2] Lyons is the birthplace of Jacquard, the inventor of an ingenious loom for the weaving of patterns in silk and other fabrics

Towns and Districts.—1. The Northern Plains (basin of the Somme and greater part of that of the Seine), an agricultural and industrial region, which derives great advantage for its commerce from its vicinity to England.

The great industrial towns of the north have already been mentioned. Of the coast towns, **Calais**, **Boulogne**, and **Dieppe** are chiefly important as points of departure and arrival on different routes between France and England, their harbours not admitting vessels of the largest class. Calais is interesting to the people of this country also as being the last place on the French mainland held by England

---

[1] This dialect is called *Armorican*, from the ancient name of Brittany.

[2] In Normandy some of the suffixes common in the names of English towns of Scandinavian origin reappear under different forms. For example, *-by* appears under the form *-bœuf*, as in Quittebœuf (the Norman equivalent of the English Whitby), *-toft*, under that of *-tot*, as in Yvetôt.

(lost only in 1558). **LE HAVRE**, or Havre (that is, 'the port'), at the mouth of the Seine, founded by Francis I. (sixteenth century), is the chief French seaport on the west coast, the starting point of the French telegraph cable to America, and the chief seat of the French trade with that continent, whence it imports cotton and some other materials of French industry, as well as articles of food. **ROUEN**, the former capital of Normandy, higher up the Seine, can be reached by smaller sea-going ships, and hence is to some extent a seaport of Paris, while at the same time it, with the surrounding towns, is a great seat of cotton manufactures, and thus is for Havre on a small scale what Manchester is for Liverpool. Still higher up, just below the junction of the Seine and Marne, stands **PARIS**, the capital of the country, in the centre of northern France, and at the meeting-place of the two chief roads to the south,[1] the one by way of the valley of the Rhone, and the other crossing at Orléans and Poitiers, the depression separating the Central Plateau from the highlands of Brittany.

Originally built on a small island in the middle of the river (now the heart of the city), it at present occupies both banks and contains 2¼ millions of inhabitants, second to London alone among the cities of the world in point of population. Its exposed situation renders defensive works necessary, and, besides being surrounded by a strong wall, it is protected by a ring of forts extending a considerable distance into the country round. Famous all over the western world as the centre of fashion and elegance, it is in France without a rival in influence, the focus of all the best intellect and energies in the country, and the originator of all the movements by which the destiny of the people is decided. W.S.W. of Paris is **Versailles**, formerly a favourite residence of the French kings, from Louis XIV. downwards.

2. Lowlands of the Loire basin with Brittany and western Normandy, a district without important industrial towns, but containing many towns of historical celebrity. On the deeply indented rocky coast of Brittany, the inlets, though like those in the West of Ireland, Wales, and the Scottish Highlands, too far removed from the seats of agricultural, manufacturing, and mining industry to serve as seaports, are well suited for naval stations, of which there are two on these coasts—**Lorient** on the south, and **Brest** on the west (the Plymouth and Portsmouth of France). On the less favoured coast of Normandy another great naval station has been constructed at great expense at **Cherbourg**, on the small bay in the north of the western peninsula facing the south coast of England. The coasts of Brittany abound in fish (sardines, &c.), and the fishermen are the hardiest seamen in France.

There are two seaports at or near the mouth of the Loire: **NANTES**, 80 miles from the mouth, the elder of the two, now, in consequence of the silting of the river bed, accessible only for small sea-going ships, and hence superseded for large vessels by **St. Nazaire**, at the mouth.[1] Higher up the Loire valley are **Angers**, on the Maine, the capital of the former province of Anjou; **Tours**, on the Loire itself, capital of that of Touraine, 'the garden of France;' and **Orléans**, capital of the much less fertile Orléannais, a town which has long been of importance in consequence of its favourable position, (1) at the bend of the river Loire, and (2) at the point where the river is crossed by the highway from Paris to the south-west[2]; **Poitiers**, on a tributary of the Vienne, to the south of the Loire, capital of Poitou, an old and old-looking town, long important on account of its position on the same highway. On the Vienne itself, on the skirts of the Central Plateau, stands the considerable town of **Limoges**, capital of the old province of Limousin, with manufactures of earthenware and porcelain.

---

[1] See Introd. p. 61 (3).

3. **South-western France** (greater part of the Garonne basin, with those of the Charente and Adour). The principal old provinces of this region are Guienne,[3] on both sides of the Lower Garonne, and Gascony, in the south-west, named after the Basques,[4] a small remnant of whom still occupy the extreme south-west corner.

In the northern part of this region there are no towns with more than 50,000 inhabitants, not even the fortified coast towns of **La Rochelle**, and **Rochefort** (the latter a naval station); but on the Garonne a short distance above the head of the long estuary of the Gironde, formed by the union of that river with the Dordogne, stands **BORDEAUX** (240, the ancient *Burdigala*), the third seaport in France, the place of export of the claret of Médoc and other wines grown in the surrounding country. Here also, however, has arisen lower down a seaport for larger steamers, **Pauillac**, on the left bank of the Gironde.

The tract on the coast south of the Gironde is the flattest in France, and one of the most unhealthy and least populous,[5] though it has increased in population and salubrity within the last generation, since it has been drained by a well-constructed system of canals. Formerly the population consisted mainly of shepherds, who tended their scattered flocks on stilts.

The fortress of **Bayonne**, at the mouth of the Adour, is said to have given name to the bayonet (though this is not certain). **Pau**, at the base of the Pyrenees, on a rapid Pyrenean tributary of this river, called the Gave de Pau, is celebrated as a resort for invalids.

4. **The North-eastern Highlands** (part of the Meuse and Moselle basins, and those of the head-waters of the Seine).

In the extreme north-east is the portion of the province of Lorraine left to France after the Franco-German war, with the fortified towns of **Verdun** and **Toul**, and the considerable manufacturing town of **Nancy**, centre of a district rich in iron ore. To the west lies the province of Champagne, the greater part of which has a chalky soil, which is suited for little but sheep pastures, and hence supplies wool to the woollen manufactories, which are the source of the present prosperity of the historically celebrated town of **Reims** (where the French kings used to be crowned). The western slopes of the hills in this province are planted with carefully tended vineyards producing the famous wine, the trade in which is centred at **Epernay** and at **Châlons-sur-Marne.**[1]

---

[1] See Introd. p. 61 (1) (*c*).

[2] See Introd. p. 61 (2).

[3] A corruption of the ancient *Aquitania*.

[4] See Spain, p. 238.

[5] In the north of the department of Landes and the south of that of Gironde there is an area equal in size to the county of Devon in which the population is less than 50 to the square mile—lower than in any county in England or Wales.

5. The Central Plateau, for the most part bleak, unproductive, and thinly peopled, especially in the south, has no considerable towns except those already mentioned (**Clermont,**[2] **St. Etienne,**[3] **Creuzot**[3]). Here the Arverni, who give name to the province of Auvergne, offered a stubborn resistance to the Romans. and in the Middle Ages and down to the second half of the seventeenth century numerous practically independent barons occupying strong castles defied the authority of the kings. At present the Auvergnats, a frugal honest race, are chiefly known, like the inhabitants of Savoy and other mountainous districts, for their habit of migrating to the richer provinces of France to earn a living, but always returning when they can to their unproductive but much-loved homes.

6. Valley of the Saône and Rhone and Mediterranean Region.—The northern part of this section of France (one of the most populous in the whole country) once formed the nucleus of the Duchy of Burgundy with the Franche Comté, the former of which was united to the kingdom of France towards the close of the fifteenth century, the latter not till two centuries later.

Dijon, where the Burgundy Canal quits the vineclad slopes of the Côte d'Or, is the centre of the trade in Burgundy wine. **Châlon-sur-Saône** is a place of some importance in consequence of its situation at the point where the Canal du Centre communicates with the Saône. On the Doubs, a tributary of the Saône, stands **Besançon**, on the flanks of the Jura, a town in which watchmaking is the chief business, as it is in other towns within the Jura. Lower down there are on the Rhone, besides Lyons, **Avignon** and **Arles**, and a little to the west of the right bank **Nismes**, the last two, under the names of *Arelate* and

---

[1] The province of Champagne containing the first extensive plains that have to be traversed by an army entering France round the northern end of the Vosges possesses numerous battle-fields. The plain round Châlons, the very first to be crossed, is the *Catalaunian Plain* on which Attila king of the Huns was defeated in a tremendous battle, by the Roman general Aëtius (451 A.D.).

[2] See p. 177. [3] See p. 179.

Nemausus, important towns in the ancient *Provincia* [1] (Provence), and interesting on account of their Roman remains; on the Isère, a left-bank tributary of the Rhone, **Grenoble** (see ALPS). West of the Lower Rhone the greater part of the region once formed the province of **Languedoc**, the chief town in which is the long celebrated **TOULOUSE**, on the Garonne, at the place where that river is joined by the Canal du Midi (southern canal), the canal which connects the Mediterranean with the Atlantic Ocean by means of the Garonne and other canals parallel to the Garonne. In the same old province, near the coast, is **Montpellier**, with a celebrated school of medicine founded by Arabs.[2] The still important seaports of the Mediterranean coast are confined to the east, and among these is the greatest and oldest of all French seaports, **MARSEILLES** (380), the ancient Massilia, a town which was founded by a Greek colony in the eighth century B.C., on a fine bay as near as possible to the delta of the Rhone,[3] and speedily developed into a great seaport on account of its situation at the end of the only convenient route connecting north Europe[4] with the western half of the Mediterranean. Farther east is the almost impregnable fortress of **Toulon**, with a naval station; and under the shelter of the spurs of the Alps are the mild health resorts of **Cannes**, **Nice**, and **Mentone**, and between the two latter **Monaco**, the capital of a nominally independent principality less than ten square miles in extent. The unsheltered parts of this coast are exposed to a hateful scourge in the form of a bitterly cold wind, known as the **mistral**, which sweeps down from the cold plateau on the north-west, or the icy summits of the Alps in the north and north-east. At Marseilles it blows on an average for nearly half the number of days in the year.

The highly mountainous island of **Corsica** (about eleven times the size of Anglesey) has several summits between 8,000 and 9,000 feet in height, and is thinly peopled by an Italian-speaking population.

It has two small coast towns, **Bastia** in the north-east, and **Ajaccio** in the west, the latter celebrated as the birthplace of Napoleon Bonaparte.

BELGIUM AND HOLLAND OR THE NETHERLANDS.[5]

Approximate latitudes: (Birmingham), Amsterdam (Berlin), 52½°; Antwerp (Leipzig), 51°.

Approximate longitudes: south-west point, 2½° E.; north-east frontier, 7° E.

---

[1] So called as being the first Roman *province* formed in France (*Gallia transalpina*).

[2] See Spain, p 235 *n*. 1.

[3] On the marshy and unhealthy delta itself there is no suitable site for a seaport.

[4] Through the valleys of the Rhone, Saône, and Rhine.

[5] Kingdom of the Netherlands is the name given by the people of that kingdom

The south-east portion of the territory forming these two countries belongs to the highlands of Central Europe, and attains an elevation of from 1,500 to 2,000 feet. Thence the surface gradually sinks towards the west and north, till it forms the lowest part of the European plain. A large area in the west even lies below sea-level. At one time the **chain of downs** which begins in the north-east of France and ends on the west coast of Jutland was continued right round the coast of Belgium and the Netherlands, being only broken by the mouths of the Rhine, Maas, and Scheldt; but the land here subsiding enabled the sea to break in and convert the deltas of these rivers into a network of sea-channels. Farther north, the sea in the thirteenth century bursting in through the downs now forming the islands of **Texel**, **Vlieland**, &c., brought a lake which then occupied the south-eastern part of the present **Zuider Zee**[1] into

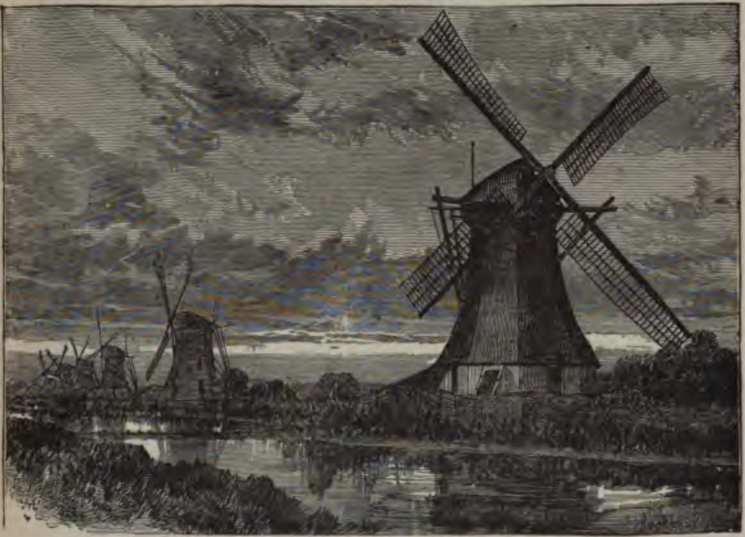


FIG. 30.—WINDMILLS FOR THE DRAINING OF A POLDER AT ZAANDAM, NORTH HOLLAND.

---

to the country which we call *Holland*, the latter name being applied by them only to two low-lying provinces in the west (provinces which, however, contain the bulk of the population). Formerly the name Netherlands included most of the provinces of both Holland and Belgium of the present day.

[1] Pronounced *Zoider zā*, Dutch = 'South Sea.'

connection with the ocean, and spread over a large area that intervened. Little of the land then lost has since been recovered; but in the west, where the submerged area was overspread with deposits from sea and river, fitting the ground when drained for rich pasture lands and fertile corn-fields, a district equal in extent to the county of Sussex (about 1,450 square miles) has been added to the land surface of the country since the sixteenth century. All this part of the country, as well as other low-lying tracts subject to occasional flooding, are divided up into sections called **polders**, enclosed by **dykes**, or artificial embankments, and drained by pumping machinery. This machinery is mostly driven by windmills, for the flatness of the country and its proximity to the sea enable the winds to blow over it with the same steadiness as over the ocean, and thus to form an unusually serviceable source of power.

The chief **rivers** of Belgium and the Netherlands all have their sources outside the boundaries of these countries. The Rhine, entering from Germany on the east, soon divides into two branches, that on the right retaining the name of the **Rhine**, while that on the left receives the name of **Waal**. The former gives off on the right two small branches (the second of which again divides), while the main stream is continued under the name of the **Lek**. The **Waal** ultimately unites with the **Maas**, and this name is henceforth applied to the single stream, which lower down receives the Lek also.

The **Maas** (French, *Meuse*) enters Belgium on the south from France, receiving thence also its largest tributary, the **Sambre**, on the left, and before joining the Waal describes a semicircle to the east; a similar curve is described by the other principal river, the **Scheldt** (Fr. *Escaut*), which also enters on the south from France, and also receives from the same country on its left bank an important tributary, the **Lys**.

The union of the Maas and Rhine constitutes in one way a peculiar danger for the Netherlands, since the fine mud which they carry down from the higher parts of their course is steadily deposited in the sluggish reaches near their mouth, where accordingly the bed of the united rivers is constantly being raised higher and higher, the surface ever nearer the tops of the embankments, which thus have from time to time to be raised in height. To remedy this it is now proposed to dig a new channel for the Lower Maas, so as to prevent its union with the Rhine. (See Introd. pp. 27–8.)

In other respects the rivers, of the Netherlands especially, are of extreme value, for they are not only themselves navigable channels, but their height above the land makes it peculiarly easy to feed navigable canals by their means, and all the chief dykes have canals as well as roads running along them. Canals are numerous even in the cities.

The density of the population is high in both countries. In Belgium[1] it is higher than in any other country in the world except Saxony, which is only half the size. In both countries this high density is due in part to the same causes, the advanced condition of commerce and agriculture. The Dutch[2] in particular are a nation of merchants, and the value of the foreign commerce per head of population is greater than in any other country in Europe. This pre-eminence is largely due to the vast colonial possessions[3] in Asia, whence the mother country derives immense quantities of coffee, sugar, rice, indigo, spices, &c., much of which is re-exported.

Agriculture is almost everywhere pursued with the greatest industry and success, though it has not in all places the advantage of a rich soil such as that of the Polders. In both countries there are large tracts where the soil is naturally unfruitful, but even these have in great part been rendered fertile by the labour of centuries. In the north-east of Belgium and south-east of the Netherlands there is, however, a large area of sandy soil which is still thinly peopled, and in the east of the Netherlands extensive peat-bogs which are only with difficulty brought under cultivation by draining the land by means of deep canals and trenches, stripping the surface of peat (for fuel) and manuring the underlying soil. Such tracts are known as **Hohe Veenen** (high fens).

In the Netherlands cattle-rearing is more general than tillage, and hence **butter, cheese,** and **live animals** are what that country supplies most abundantly to others out of its own resources. In Belgium, on the other hand, tillage predominates, and besides great quantities of **grain**[4] there is produced much **flax** and **beet.**

In both countries the chief grains are rye, wheat, and oats. Wine is grown in the south-east (including Luxemburg). Except wine, the Netherlands grow in smaller quantity all the products of Belgium, and in the former country the growing of vegetables and ornamental flowers (**Dutch bulbs**) is an important specialty.

---

[1] Nearly 500 to the square mile.

[2] This term, a corruption of the Ger. *Deutsch*, meaning German, was applied in this country to the Germans in the last century, as it still is in the United States, but is now applied by us to the people of the Netherlands.

[3] See p. 256.

[4] Relatively to area, Belgium produces a greater quantity of grain than any other country in the world regarding which statistics can be obtained.

But besides commerce and agriculture the inhabitants depend to a large extent on **manufacturing industry**, those of Belgium also on **mining**, and it is chiefly to this cause that the extremely high density of population is due. The outer margin of the plateau in the south-east, like the margin of the same plateau in west Germany, is occupied by a rich coal-field, containing also iron, the products of which not only support large manufactories in Belgium itself, but also supply a large surplus for export, chiefly to France. The **chief manufactures** of Belgium are **cotton, linen,** and **woollen** goods, and **machinery**; and the chief manufacturing centres are **Liège,** on the Meuse, **Mons,** on a tributary of the Scheldt near the French frontier, and **Ghent,** at the confluence of the Scheldt and Lys. Besides coal and iron, **zinc** is also an important mineral product.

In Holland also **linen** and **cotton** manufactures are highly important, and Holland now comes next after Great Britain in the quantity of raw cotton it imports per head of population, to be made into yarn or cloth in the country. Another important mechanical industry is the building of **wooden ships**, the timber for which is floated down the Rhine from the Black Forest. Various industries are, however, pursued on a small scale, and as in draining the polders the wind is very largely made use of to drive the machinery for the purpose. Windmills grind corn, coffee, and chocolate, scutch flax and hemp, bruise oil-seeds, mash paper-pulp, and perform other operations.

To understand the great density of population in Belgium and the Netherlands, we must have regard also to the **history** of the countries. Though the absolute amount of the commerce of these regions can never have been as large as it is at present, its relative amount was in earlier times even greater. From the thirteenth to the fifteenth century the seaports of **Antwerp** and **Bruges** were the rivals in commerce of Venice and Genoa, and the development of population dates from that period. Commerce stimulated all other branches of industry. Manufactures flourished from the ease with which raw materials could be obtained from abroad, manufactured goods sent away to distant markets. Supplied with wool from England and elsewhere, Ghent and other cities of Flanders wove immense quantities of cloth at a time when English manufactures were unknown, and to meet the wants of artizans and traders the soil was cultivated with an amount of care which would have been thrown away elsewhere.

This wealth made the possession of the Low Countries or Netherlands an object of desire to many princes, and after frequently changing masters the provinces came into the hands of the kings of Spain about the beginning of the sixteenth century. About that time the Reformation movement began, and the zealous Roman Catholic king of Spain, Philip II., made every effort to prevent the adoption of Protestant principles by the people of the Netherlands. In the end, the northern provinces, which had firmly embraced **Protestantism**, acquired their independence, but the southern provinces were subjected and kept attached to **Roman Catholicism.** Both divisions ultimately became kingdoms, but their present existence as separate kingdoms dates only from 1830.

The **Dutch language** is a Teutonic tongue, more closely allied to English than German is, and a dialect only slightly different (**Flemish**) is spoken by more than half of the inhabitants of Belgium, the remaining half of whom in the south (**Walloons**) speak French.

Elementary **education is** compulsory in both countries; but education generally is more advanced in Protestant Holland than in Roman Catholic Belgium.

Towns and Districts.—1. Belgium. **GHENT**[1] (prov. East Flanders), at one time the residence of the Counts of Flanders, attained the height of its prosperity in the fifteenth century, at which date it was more populous than Paris. Its modern prosperity it owes to cotton manufactures; Ghent containing half of all the Belgian cotton spinneries. **Bruges**, in West Flanders, formerly the port of Ghent, is a declining town, and has now only interesting relics of a past glory. **Ostende**, amidst the downs of the coast, is chiefly noted as a sea-bathing place. **ANTWERP**[2] (nearly 200; in 1846, 100; prov. Antwerp), a little above the head of the estuary of the Scheldt,[3] occupies a position nearly as favourable for commerce as London, and is now growing with rapid strides as a seaport. In former days it reached the height of its prosperity in the fifteenth and sixteenth centuries, declining in the seventeenth on the rise of the Dutch seaports; but it has now once more outstripped the latter, and become one of the greatest seaports on the mainland of Europe, importing the raw material not only for the manufactories of Belgium, but also to a large extent for those of the middle Rhine basin. It is strongly fortified, and is likewise noted for its fine cathedral and its art treasures. **BRUSSELS** (prov. South Brabant), near the centre of the country, at the meeting of hill and plain, with manufactures of carpets and lace, a town of comparatively modern origin, but now the capital of Belgium. Immediately to the south lies the battlefield of Waterloo. **Louvain**, in the same province, east of Brussels, is the seat of the most flourishing of the Belgian universities. In the fertile province of Hainaut is **Mons**, the neighbourhood of which is crowded with coal-mines and ironworks, and is the most densely inhabited part of Belgium. **LIÈGE**, capital of the eastern province of the same name, on the Meuse, where it begins to turn northwards, is the Belgian Birmingham, and its suburb, **Seraing**, is noted for its machinery and other iron manufactures. **Verviers**, in the same province, has important woollen manufactures.

---

[1] Flemish, *Gent*; French, *Gand*. Ghent is now also a considerable seaport, a ship-canal, admitting vessels of 2500 tons burden, having been constructed to connect the town with the estuary of the Scheldt.

[2] Flemish, *Antwerpen*; French, *Anvers* (*s* pronounced). [3] See Introd. p. 61 (1) (*a*).

2. Netherlands.—In North Holland, **AMSTERDAM** (370), on the Ij,[1] a branch of the Zuider Zee, the chief commercial town in the country, first acquired importance after the revolt against Philip II. of Spain. The Zuider Zee being too shallow for shipping, a canal was constructed first of all northwards to **Helder**, opposite the island of Texel, but this has recently been superseded by another canal, which proceeds westwards to the North Sea at Ijmuiden,[2] and is capable of being used by the largest ships. The population includes a large proportion of Jews, among whom are many diamond merchants. **Haarlem** (prov. North Holland), a few miles west of Amsterdam, is the centre of the flower cultivation of the Netherlands. **Leiden** (South Holland) is the seat of a well-known university,[3] famous in last century for its medical school. **The Hague** (Dutch, 'S Gravenhage, 'The Count's Hedge'), also in South Holland, a few miles to the south-west of Leiden, is the political capital of the country. **ROTTERDAM** (South Holland), south-east of the Hague, on the Maas, still the chief seaport in the Netherlands, having outstripped Amsterdam when that port was not accessible for ships of a large size. **Utrecht**, in the province of the same name, important as a seat of trade and industry, first of all on account of its situation at the point where the Old Rhine[4] and the Vecht[4] diverge, the former the water-way from Germany to Leiden, the latter to Amsterdam; now a railway centre. It is also the seat of a university, and historically is noted as the place where several important treaties were concluded in 1713.

---

[1] Formerly spelt Y, pronounced like the English letter I.

[2] That is, 'Mouth of the Ij:' *ui* in Dutch is pronounced like *oi* in English.

[3] Founded by William of Orange in 1575 to commemorate the heroism displayed by the inhabitants during the siege which it had just sustained against the Spaniards.

[4] The two most northerly arms of the Rhine, formed by the branching of the Kromme (crooked) Rhine.

GERMANY.

Approximate latitudes: (York), Mouth of Elbe, Lübeck, 54°; (Birmingham), Berlin, 52½°; (Mouth of Loire), southern frontier (Buda-Pest), 47½°.
Approximate longitude: 6° to 23° E.

Germany is an empire in Central Europe, rather larger in area and considerably more populous than France. It is for the most part without natural boundaries[1] in the east and west, but separated in the south from Austria and Switzerland by a series of mountains and the Lake of Constance.

The **surface** is for the most part mountainous or highland (above 1,000 feet) in the south-west, while in the north and east it is part of the great Central Plain of Europe.

If we begin our description in the south-west we notice first of all a range of mountains, the **Vosges** (Ger. Vogesen), running north and south on the left bank of the Rhine, and now forming part of the Franco-German frontier. On the opposite side of the Rhine, at the point where that river turns to the north, we observe the junction of two mountains or narrow plateaux, one of which runs north, parallel to the Vosges, the other north-east. The former is known as the **Black Forest**, from its covering of dark pines; the latter is a continuation of the Swiss Jura, and in Germany first receives the name of the **Suabian Alps** (in Würtemberg), and afterwards that of the **Franconian Jura** (in Bavaria). The direction of these latter ranges is at first nearly parallel to the course of the Danube, but opposite the bend of that river, where Ratisbon stands, becomes more northerly, the Franconian Jura advancing in that direction nearly to the **Fichtelgebirge**, in the north-east of Bavaria. From the neighbourhood of this somewhat isolated group other three mountain ranges strike off in different directions—one, the **Franconian**[2] and **Thuringian**[3] **Forests**, to the north-west; a second, the **Erzgebirge**,[4] to the north-east; and the third, the **Bohemian Forest**,[5] to the south-east. These mountains may be considered as marking off different regions of the German highlands.

---

[1] By natural boundaries is meant boundaries formed by some well-marked physical feature, such as seas or mountain chains.

[2] Ger. *Frankenwald.*

[3] Ger. *Thüringerwald.*

[4] Ger. = Ore Mountains.

[5] Ger. *Böhmerwald.*

(1) The German Jura, the Bohemian Forest in the east of Bavaria, and the Alps in the south of Bavaria, enclose a triangle consisting mainly of a bleak plateau with considerable stretches of moorland. (2) A second triangle lies to the north-west of the Jura, and is bounded on the other two sides by the Thuringian Forest and a plateau of ancient slates, through the middle of which the Rhine has cut for itself a deep gorge, where it flows from Bingen towards the north-west. This triangle, drained by the **Neckar** and the **Main**, as well as the **Rhine**, is very varied in surface, but its valleys are among the most favoured parts of Germany in respect of soil and climate. Specially favoured is the flat portion of the valley of the Rhine between Mainz[1] in the north and Basel[2] in the south, and between the Black Forest and the Vosges in the east and west. (3) A third triangle looks to the north-east, bounded on two sides by the Thuringian Forest and the Erzgebirge, the latter of which slope gradually towards Germany with parallel undulations, while the third side is formed by the irregular outline of the German plain, which, in the west, begins only at the base of the **Hartz Mountains**, a somewhat isolated range, stretching parallel to the Thuringian Forest, a little to the south of lat. 52° N. This triangle is also very varied in surface, though still mainly highland. The valley of the **Weser** separates this triangle from the slate plateau in the extreme west, a plateau which is itself surmounted here and there by smaller plateaux or mountains. These are in some cases masses of granite, in others, as in the **Eifel**, north of the Moselle, on the left bank of the Rhine, ancient volcanoes like those of the Auvergne region in France.[3] Their craters now form in some cases small lakes.

Beyond the Erzgebirge, the frontier mountains of Germany again take a south-easterly direction, like the Bohemian Forest, as well as the Thuringian Forest and the Hartz Mountains, and they lie indeed in the same line with the last-mentioned range. The general name of the **Sudetes** is sometimes applied to the whole series; but the north-west section is most usually distinguished by the name of **Riesengebirge**.[4] It is opposite the Sudetes that the German plain spreads out to its widest.

The German **lowlands** are for the most part undulating.

---

[1] Fr. *Mayence*. [2] Fr. *Bâle*. See p. 209 n. 2. [3] See cut, p. 177. [4] Ger = Giant Mountains.

Only here and there are there perfectly level tracts. The soil is not in general very fertile, but in the west there occurs near the coast a considerable tract, over which the sea has in former times spread a covering of rich deposits now occupied by corn-fields and meadows. This tract, which is divided up by dykes and canals like the Dutch polders, presents a marked contrast to the more barren and heathy region behind.

The outskirts of the German highlands contain nearly all the important mineral deposits of the country. At the foot of the Sudetes in Upper Silesia (Prussia) are found **coal, iron,** and **zinc**, the former of which have made this the seat of a great iron industry, of which **BRESLAU** (300), on the Oder, is the centre. The **Erzgebirge** yield **silver, lead,** and **tin**; and a rich coal-field at their base has converted this part of Germany into an important manufacturing region, the centre of which is **CHEMNITZ**,[1] the Saxon Manchester (in the kingdom of Saxony). The **Hartz Mountains**, one of the oldest mining districts of Germany, yield metals of all sorts, and the northern slopes of the western plateau furnish nearly inexhaustible supplies of coal and iron, so that this region, favoured also by its situation near the coast, and its easy access to the Rhine, is the most important of all the industrial districts of Germany, and is almost as thickly studded with manufacturing towns as South Lancashire or the south-west of Yorkshire.

The district belongs entirely to the Prussian provinces of the Rhine and Westphalia. The principal towns in it are the twin towns of **BARMEN** and **ELBERFELD**, with manufactures of silk and cotton; **COLOGNE**,[2] **Düsseldorf** (also famous for its school of painting); **Aachen**,[3] chief seat of the German woollen manufactures; **Krefeld**, chief seat of the silk manufactures; **Dortmund** and **Essen**, the chief centres of the coal and iron industry of Germany, the latter with the vast iron and steel works of Krupp; **Bonn**, on the Rhine, more celebrated as the birthplace of Beethoven than as a manufacturing town.

Besides the minerals already mentioned, **amber** is still an important product on the eastern shores of the Baltic.[4] **Salt** is obtained in various places; and besides common salt, there are produced at **Stassfurt**, in Prussian Saxony, great quantities of potash salts, which form a valuable manure.

---

[1] It is worthy of note, however, that in the kingdom of Saxony the textile and other manufactures are not so much centralised in large towns as in other great industrial regions, but are distributed over a crowd of small towns and villages.

[2] Ger. *Köln*, both forms being corruptions of the first half of the ancient Roman name, *Colonia Agrippina*. It is famous for its cathedral, commenced in 1248, but not completed till 1880.

[3] Better known by the French name of *Aix-la-Chapelle*.

[4] See p. 204.

In other parts of Germany the people are chiefly engaged in **agriculture** and **cattle-rearing**. The chief crops are **rye, potatoes**, and **sugar-beet**.[1] In the warmer valleys lying amidst the highlands of Central Germany, **fruit** and **wine** become important products, but more fruit than wine is grown; while further to the south-west, and especially on the hills looking down on the Rhine and its tributaries, the Neckar and the Main, wine is the staple production, and **tobacco, maize**, and **hops** also attain importance.

Forests cover one-fourth of the entire surface, and in ancient times all Central Europe appears to have been, like Britain, chiefly an area of woodland and marshes.

The **rivers** of Germany, all of which, except the Danube and its tributaries, drain into the German Ocean and the Baltic, are of great value as highways of commerce, and hence have an exceptionally large number of important towns on or near their banks. The **Rhine**, the **Elbe**, the **Oder**, and the **Vistula** are navigable for all or nearly all that part of their course which lies within the German frontier. The first two, both broad and deep rivers, are specially important, and still carry enormous quantities of merchandise, notwithstanding the development of railways, and the banks of the Rhine are studded with a larger number of important towns than any other river in Europe.

In the **commerce** of Germany Australian **wool** takes an important place among the **imports**, but this commodity is mostly imported from Great Britain, and the total quantity of Australian wool thus received is far exceeded by the quantity obtained direct from the Argentine Confederation. Along with **wool, grain** and **raw cotton** are the **chief imports**, and **woollen** and **silk manufactures** together with **sugar** form the **chief exports**.

The **population** of Germany is rapidly increasing, notwithstanding a rapid emigration, especially to the United States of America. Its average density is upwards of 200 to the square mile.[2] The majority speak **German** dialects, but in the east

---

[1] A plant allied to mangold with a thick tapering root, the chief source of sugar on the mainland of Europe.

[2] The densest population is in the kingdom of Saxony (where the density exceeds 500 to the square mile) and in the industrial region of the west. Comp. p. 187 n. 1.

(Prussian province of Posen, and parts of the provinces of West Prussia and Silesia) the people are chiefly Poles, a **Slavonic** people. At one time Slavs extended much farther west. The migrations of German tribes which broke up the Roman empire in the fourth and fifth centuries were largely due to the pressure of Slavs in the east, and gradually the Slavs advanced as far as the Elbe and the Saale (the middle of Germany). By degrees they were driven back, and those who were left for the most part Germanized. The German-speaking tribes then became the leading power in Central Europe. A German Empire, consisting of a large number of feudal states, embraced not only the greater part of the present Empire, but, at the height of its power, also Bohemia, Moravia, the entire domain of the Alps, the north of Italy, the Burgundian plain in the basin of the Rhone and Saône, Belgium, and the Netherlands. The supreme ruler claimed to be the successor of the Roman emperors, and, being crowned by the popes, called his dominion the **Holy Roman Empire**. From the sixteenth century, in consequence of the wars between Roman Catholics and Protestants after the Reformation, the power of the emperors rapidly diminished, the different states becoming more and more independent, and during the Napoleonic wars the empire ceased to exist even in name. A confederacy was then formed, of which Austria was a member; but Austria was expelled in 1866 after a war with Prussia, which henceforth became the leading state. The present German empire, comprising twenty-five independent states, besides the Imperial territory of Alsace-Lorraine,[1] was constituted in 1871 during the continuance of the Franco-German war.

The following table shows the principal members of the German Empire:—

Kingdoms	Area in thousands of sq. miles	Pop. in millions (1890)
Prussia	134	30·0
Bavaria	29	5·6
Saxony	5·8	3·5
Würtemberg	7·5	2·0
Imperial Territory		
Alsace-Lorraine	5·6	1·6

Grand-duchies	Area in thousands of sq. miles	Pop. in millions (1890)
Baden	5·8	1·7
Hesse-Darmstadt	3	1·0
Mecklenburg-Schwerin	5	0·6
Mecklenburg-Strelitz	1	0·1
Saxe-Weimar	1·4	0·3
Oldenburg	2·5	0·3

---

[1] Ger. *Elsass-Lothringen*, but generally known in this country by the French name on account of the long connection of the provinces with France, from which

There are in addition five **duchies**[1] and seven **principalities**, all smaller than an average English county, besides the three **free cities**[2] of Hamburg, Bremen, and Lübeck, which have a republican form of government. Heligoland, a small island off the mouth of the Elbe, was ceded by the British to Germany in 1890.

The position of these states can be learned only from the map; but it may be noted that Prussia extends (with interruptions) along the whole length of North Germany; in South Germany between France and Austria, Alsace-Lorraine, Baden, Würtemberg, and Bavaria, succeed one another from west to east, and Saxony lies to the south of Central Prussia. The kingdom of Prussia is divided into twelve provinces.

Three-fifths of the inhabitants of the empire are **Protestants**, scarcely two-fifths (chiefly in the east and south-west) **Roman Catholics**. Education is very widely diffused and highly advanced. There are twenty-one **universities**, the chief of which are **Berlin** and **Leipzig**.

Towns.—1. Seaports.—On the coast of the German Ocean, where a line of downs, fringed by small islands (the Frisian Islands), separated from the coast by a sea so shallow[3] that several of them can be reached on foot at low tide, forms a continuation of the coast-line of Holland, the only seaports are at the mouths of the rivers.

On the Weser stands **BREMEN**, but no longer accessible for large ships,[4] on which account **Bremerhaven**, lower down, was founded by the city on land purchased in 1827 from Hanover, which has itself founded the contiguous seaport of **Geestemünde**; **HAMBURG** (300; pop. of the entire state, 600), at the head of the estuary of the Elbe, is still accessible, with the aid of the flood-tide (which rises on an average above 6 feet), for the largest sea-going vessels, and is the chief seaport in Germany. This pre-eminence it owes not only to its commerce with the eastern ports of Britain and North America, but also to the fact that it stands at the mouth of a river which is navigable even as high as the industrial region of Saxony. The contiguous

---

they were acquired by Germany only at the conclusion of the Franco-German war in 1871. It is directly under the Imperial government.

[1] Brunswick, Saxe-Meiningen, Saxe-Coburg Gotha, Saxe-Altenburg, Anhalt.

[2] Often called the Hanse Towns, as being the last independent survivors of the *Hansa*, a league of trading towns formed in the Middle Ages for mutual protection. The league had a depôt in London which was long known as the Steelyard.

[3] The so-called *Watten*.

[4] See Introd. p. 61 (1) (*c*).

port of **Altona** is in the Prussian province of Schleswig-Holstein, but, like its larger neighbour, it is a free port. **Cuxhaven**, a port belonging to Hamburg, at the mouth of the estuary, is naturally of less importance to Hamburg than Bremerhaven to Bremen, though useful, especially in winter. **Tönning**, at the western end of the **Eider Canal**,[1] which affords a passage for small seagoing ships between the German Ocean and the Baltic, is a small town but a seaport of rising importance, in consequence of its exports to Britain of sheep and cattle. The inlet in the north of the duchy of Oldenburg, known as the Jahde, due to an irruption of the sea in the Middle Ages, was purchased in 1823 by Prussia, which at great cost established here the naval station of **Wilhelmshaven**, the only German naval station the waters of which do not freeze in winter.[2]

The east coast of Schleswig-Holstein presents a complete contrast to that of the west, having a large number of beautiful creeks, forming admirable natural harbours, only one or two of which, however, have anything but local importance.

Kiel (Prussia), having the finest natural harbour on the German shores of the Baltic, is the principal station of the German navy, and a place of considerable trade. **Lübeck**, at the head of the next bay to the south-east, was in the Middle Ages, before the extension of German civilisation to the seaports in the east of the Baltic, and before the discovery of America gave greater importance to the seaports communicating more directly with the Atlantic, one of the leading seaports in Europe, for some time at the head of the Hansa, but is now only of local consequence through its Baltic trade.

Wismar (Mecklenburg-Schwerin) is still more decayed, and **Stettin** (Prus. prov. Pomerania), at the mouth of the Oder, is the next important seaport. **Swinemünde**, on the island of Usedom, has the same relation to Stettin as Cuxhaven to Hamburg, and is, besides, a fortified naval station of the German Empire. On the low, flat coast[3] bordering the sterile strip of Eastern Pomerania, there are no seaports of consequence; but in the provinces of East and West Prussia there are three ports, Danzig, Königsberg, and Memel, all of which carry on a large export trade in the products of the land behind them (timber, grain, flax, and hemp). **DANZIG** (prov. of West Prussia) stands at the mouth of a small branch of the Vistula, which diverges to the Gulf of Danzig, instead of entering the shallow lagoon called the **Frisches Haff**, which is separated from the gulf by a long, low sand-spit. **KÖNIGSBERG** (Eastern Prussia), at the mouth of the Pregel, at the eastern extremity of the Haff just mentioned, owes its rise to an inroad of the sea, which effected a communication with the Baltic at this part. It is the seat of a university at which the philosopher Kant was a professor. **Memel**

---

[1] This canal has now been superseded by another deep enough for the largest vessels, constructed from the mouth of the Elbe to Kiel Bay (the eastern end of the present canal). This canal was opened in June 1895.

[2] The comparatively fresh waters of the Baltic freeze very readily, see p. 157.

[3] See Introd. p. 48.

stands at the northern extremity of the **Kurisches Haff**, which is even shallower than the Frisches Haff, and hence inaccessible to sea-going vessels.

2. Inland Towns of the Plain.—The most important of these is **BERLIN** (Prussian province of Brandenburg), capital of Prussia and the German Empire, on the insignificant river Spree, which communicates with the Elbe, partly by means of artificial channels.

Situated in the midst of an unfruitful, sandy district, it owes its importance solely to the fact of its lying in the centre of the German plain, which made it a convenient spot to select as the capital of the power which acquired predominance in that plain.[1] This fact has likewise promoted the development of its trade, and manufacturing industry (above all, the making of machines) has naturally been added. Its population is now upwards of 1,300,000. About 20 miles to the west is the garrison town of **Potsdam**, with the summer palaces of the Prussian kings.

Posen (prov. Posen), a flourishing commercial town on the Warta (trib. Oder), almost due east of Berlin, likewise owes its rise to its central situation. South of Posen, **BRESLAU**, the chief town of Silesia not only the seat of a great iron industry (see above p. 183), but also of various other manufactures and the chief market for Silesian wool and zinc. **MAGDEBURG** (prov. Saxony), west-south-west of Berlin on the Elbe, where some harder rocks rise above the plain to form the banks of the river, and where accordingly the river was easily bridged;[2] hence an important place both in war and commerce. It also lies at the westernmost point of a long reach of the river which divides a fertile tract on the west from barren sands in the east, and as the former is the chief district in Germany for the growth of sugar-beet, Magdeburg is the centre of the German manufacture of sugar.[3] In 1631 the town was cruelly sacked by the soldiers of Tilly the Imperialist general, and its military importance is still recognised by the fact of its being the only place in the centre of Germany the fortifications of which are maintained. West-north-west of Magdeburg is situated **HANOVER** (prov. Hanover), on the Leine, where it begins to be navigable, the residence of the former kings of Hanover, and now important as the centre of the Hanoverian railway system.

All the towns of the plain hitherto mentioned are now in the kingdom of Prussia, but there are two large towns in the kingdom of Saxony[4] in this part of Germany, one, **DRESDEN** (250), the capital, celebrated for the beauty of its situation, its art treasures, and its mild climate, all of which make it a favourite place of residence for men of means (including many English). It is also noted as the centre from which one may visit the scenery of the so-called **Saxon Switzerland,** where the Elbe breaks through the mountains at the end of the Erzgebirge amidst fantastically weathered sandstone rocks.[1] The second of the cities referred to is **LEIPZIG**, in a rich plain at the meeting-place of two great high-roads,[2] the one from Frankfurt and the Main valley across the Franconian forest, the other from Bohemia, hence from an early period a great seat of trade, largely conducted at periodical fairs, which are kept up to this day. They are held twice a year. Furs and woollen goods are the staple articles of trade, and at the Easter fair an immense book-market is opened, Leipzig being the centre of the German book-trade. Since the creation of the present German Empire it has been made the seat of the supreme courts of law.

---

[1] See Introd. p. 61 (3) (*a*). [2] See Introd. p. 61 (2) (*c*). [3] See p. 194, n. 1.

[4] This kingdom was formerly known as an electorate, because in the days of the old German empire the ruler of Saxony was one of the seven princes who elected the emperor. The merino sheep (see pp. 89 and 238) having been introduced into this electorate about the middle of the eighteenth century and reared there with great care, 'electoral wool,' as it is still called, has attained the reputation of being the best 'clothing wool' in Europe, and indeed in the world, though it has a rival in Silesian (Prussian) wool, and occasionally in Bohemian (Austrian) wool.

Brunswick,[3] the capital of the duchy of the same name, is also a flourishing town. The Duchy, like the adjoining Prussian province of Saxony, is a great seat of the cultivation of sugar-beet, and the town of Brunswick, like that of Magdeburg, a centre of the sugar industry, as well as of various manufactures.

3. **German Highlands.**—On the north-west of the German highlands are the industrial towns of the Prussian provinces of the Rhine already mentioned. On the Main **FRANKFURT** (Pruss. prov. of Hesse-Nassau), formerly a free town, but annexed in 1866 to Prussia, still one of the chief seats of banking and exchange in Germany, but chiefly celebrated as the birthplace of Goethe, the greatest of German poets. Near the left bank of the Rhine, **STRASSBURG**, the chief town of the Imperial territory of Alsace-Lorraine, the seat of a university very liberally endowed since the province in which it lies was acquired by Germany. Further south **Mülhausen,**[4] the centre of a busy cotton manufacturing district. In the valley between the Black Forest and the Suabian Alps **STUTTGART**, on the Neckar, capital of the kingdom of Würtemberg, a rapidly growing town, another important seat of the German book-trade. In the middle of the southern plateau **MUNICH**[5] (260), capital of the kingdom of Bavaria, on the Isar, the largest town in South Germany, with a famous university and polytechnicum, and rich art treasures. West-north-west **Augsburg**, on the Lech, formerly a place of great commercial importance on account of its situation at the meeting of the roads leading across the Alps by the Splügen and Brenner Passes, and at the head of the marshes which border the lower Lech.[6] **Ulm**, in Würtemberg, at the point where the road across the Suabian Alps from the Neckar valley joins the Danube, and where this river begins to be navigable for vessels of 100 tons, has had a similar history. **Ratisbon** (Ger. Regensburg), in Bavaria, near the northernmost point of the Danube, where it begins to be navigable for steamers, is likewise a town of great historical importance. In northern Bavaria (Franconia), **NÜRNBERG**, an old and antique-looking

---

[1] See cut, p. 201.
[2] See Introd. p. 61 (3).
[3] Ger. *Braunschweig.*
[4] Fr. *Mulhouse.*
[5] Ger. *München.*
[6] Were it not for these marshes the town would naturally have grown up at the confluence of the Lech and Danube. See Introd. p. 61 (2) (*a*) and (3).

town celebrated for its manufacture of and trade in wooden toys, the material for which is obtained from the Black Forest. The small mining town of **Eisleben** at the eastern end of the Hartz Mountains (Prus. prov. Saxony) is memorable as the birthplace of Luther. Along the northern skirts of the Thuringian Forest, among the small states known as the Thuringian States, **Eisenach, Gotha, Erfurt, and Weimar** (the last the home of Goethe for the greater part of his life) succeed one another from west to east at the distance of from fifteen to twenty miles. Erfurt is in the Prussian province of Saxony.

LUXEMBURG.

Luxemburg is a grand-duchy, of about 1000 square miles in extent, composed of undulating uplands cut by deep river valleys. It belongs to the German Customs Union (Zollverein), and is important economically on account of its enormous deposits of iron ore, adjoining those of Alsace-Lorraine and the north-east of France. German is the prevailing language.

THE ALPS.

Approximate latitude: Mont Blanc, 46° N.; longitude, 7° E.

The Alps are, beyond comparison, the most important mountain system in Europe. They do not cover the largest area, for both the highlands of Scandinavia and the Ural Mountains have a greater extent, but they contain the highest peaks, have the greatest average elevation, and, what is most important, instead of being situated in a thinly populated region, lie between countries in which the population is dense, and has long been highly civilised. The mountains belonging to this system sweep round the west and north of Italy, and spread out to the east in a number of nearly parallel chains in Austria.

The structure of these mountains as illustrated in the accompanying figure (fig. 26) showing how in the valley of Chamounix below Mont Blanc the strata have been folded between masses of gneiss and granite, proves that the forces to which they owe their elevation have been extraordinarily violent in their action. The greater steepness of the slope on the inner side indicates that on this side there has been most resistance to the crushing force that led to their folding and elevation.[1]

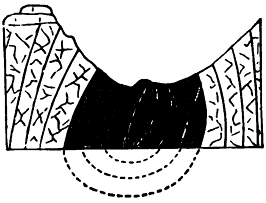


FIG. 31.

In the broader (east to west) part of the system, the mountains can be divided according to the nature of the rocks of

---

[1] See Introd. p. 34.

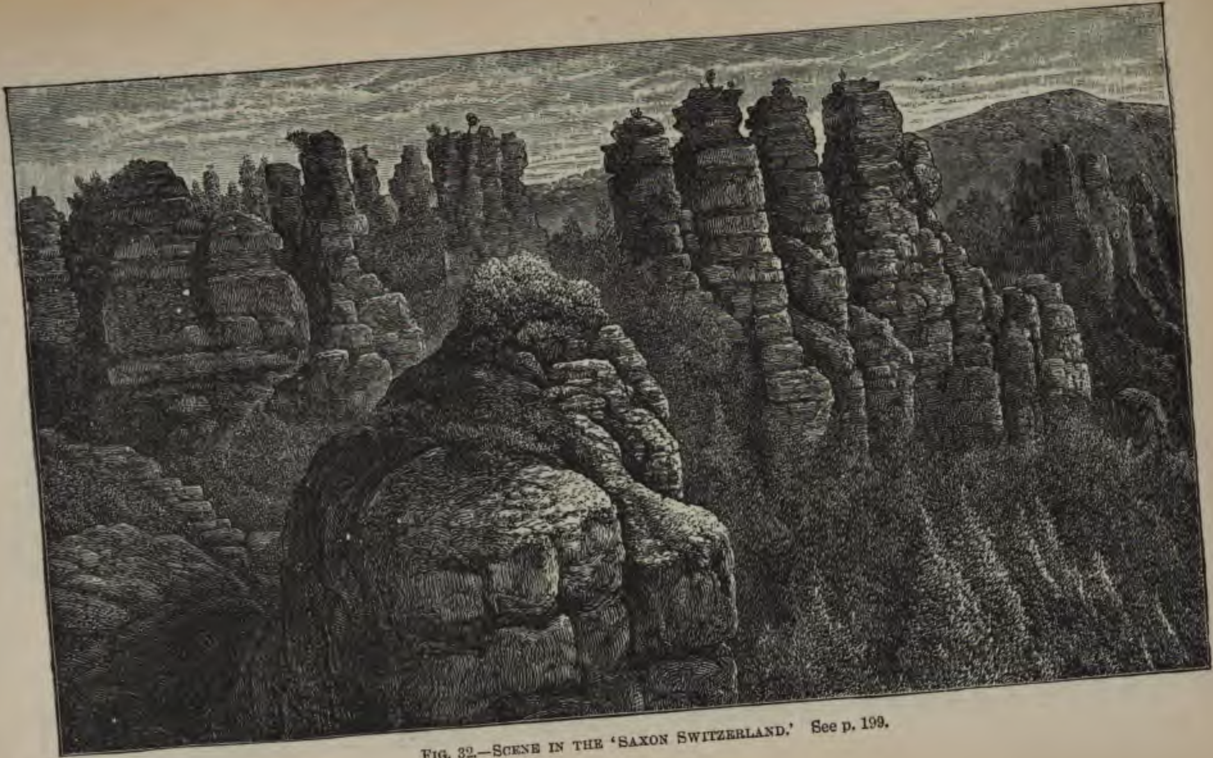


FIG. 32.—SCENE IN THE 'SAXON SWITZERLAND.' See p. 199.

which they are composed into **three zones**, succeeding each other from north to south. The middle zone consists of granite and other crystalline rocks,[1] which form the core of the system; while in the outer zones various limestones predominate, so that these parts of the system have been called the **Limestone Alps.** On the north the limestone zone extends farther west than on the south or inner side, where in the west the limestone zone is wanting, crystalline mountains descending right down to the plains of Italy. On this side the limestone zone begins only on the east of the Lago Maggiore in the form of a very narrow fringe, which spreads out to the east.

The narrowest part of the system is that which runs from north to south, between Italy and France, and in this part the principal valleys are those which, traversed by the **Durance** and **Isère**, wind in numerous zig-zags to the valley of the Rhone. The system suddenly increases greatly in breadth where it turns eastwards, and here we begin to meet with its most striking features—its loftiest peaks, its snow-fields, glaciers,[2] and waterfalls, its parallel chains with intervening longitudinal valleys[3] traversed by important rivers, (the Rhone, Rhine, Inn, Enns, Drave, &c.), and sometimes occupied by large and beautiful lakes.[4] All of these longitudinal valleys open on the outer side of the curve described by the whole system, but some of the transverse valleys on the inner side are occupied by lakes of even greater beauty.[5] The most important of the longitudinal valleys is that of the Upper Rhone, between the Bernese Alps on the north and the Alps of Valais on the south, and into it descends from the former chain the largest of the Swiss glaciers, the **Aletsch.** The chains that bound this valley contain the highest peaks of the whole system, several on both sides rising to above 14,000 feet in height, and two (both in the south) to above 15,000 feet. One of these, **Mont Blanc**, in the French department of Upper Savoy, at the angle where the general direction of the mountain system becomes east and west instead of north and south, attains

---

[1] Crystalline rocks are composed of small particles or fragments of particles of a definite and regular form. Most rocks due to the action of heat are crystalline, and crystalline rocks are generally hard.

[2] See Introd. p. 53.

[3] *Longitudinal* valleys are valleys separating parallel mountain chains, those which run at right angles to the general direction of a chain being called *transverse* valleys.

[4] See Switzerland, p. 208.

[5] See Italy, p. 240.

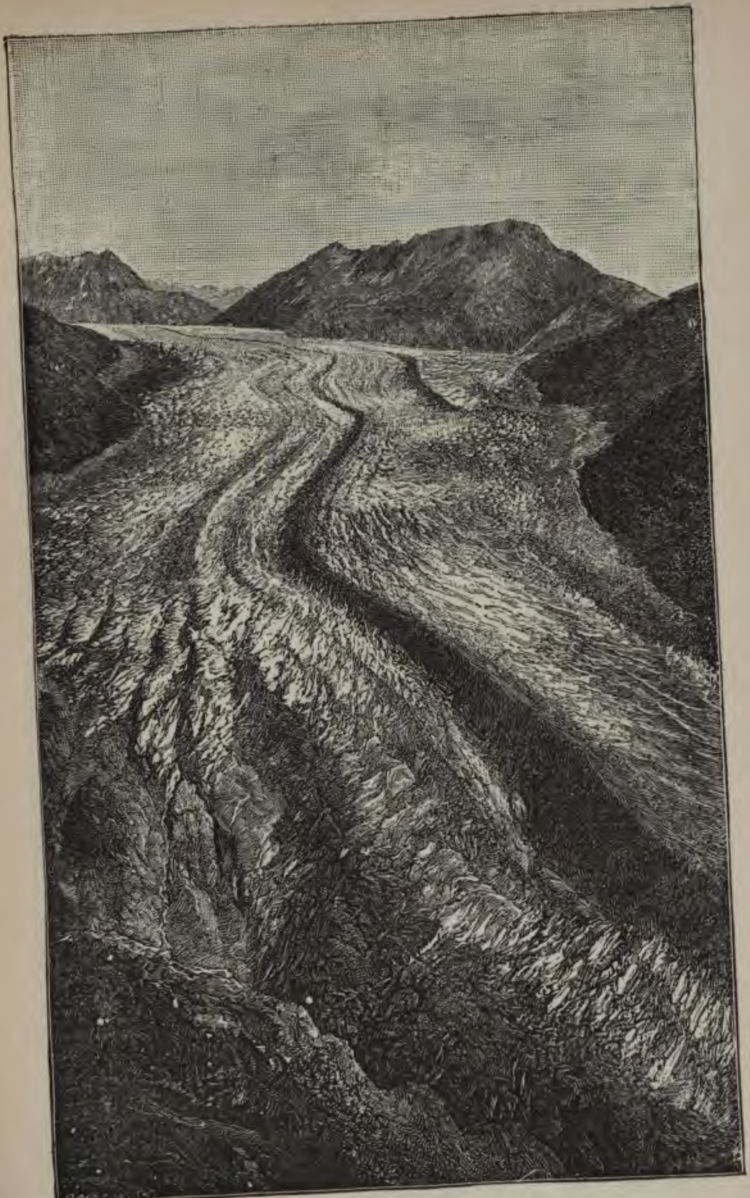


FIG. 33.—THE ALETSCH GLACIER.

the height of 15,800 feet, or not far short of three miles. The other is **Monte Rosa** situated to the east of Mont Blanc on the Italian and Swiss frontier.[1]

It is one of the most noteworthy features of the whole system that the peaks rise to a great height above the general elevation of the mountain chains, and that there are numerous deep notches or passes led up to by gradual ascents on both sides, enabling commercial intercourse to be carried on across the mountains. Hence, from an early period, these mountains have not acted as a barrier to communication so much as might be expected from their extent and elevation. Even in ancient Roman times one of the great routes of trade was that by which amber was conveyed from the east shores of the Baltic across the Eastern Alps, where the passes are lowest. In this part of the system there are scarcely any important passes above 5,500 feet in height, while in the Middle Alps, from the sources of the Adige to Mont Blanc, there are few under 6,500 feet, and the principal passes in the Western Alps are also above that height. In many places the passes have to be protected by galleries (archways with openings for light on one side) against avalanches.[2]

The chief passes are: (1) in the **Western Alps**, the part of the system running mainly north and south—(*a*) the **Col di Tenda**, across the Maritime Alps, between the south-east of France and the south-west of Sardinia. (*b*) The **Mont Cenis Pass**, between the Isère valley (with the fortress of Grenoble) and the valley of the Dora Riparia (a tributary of the Po leading direct to Turin), in the Middle Ages the most frequented of all the passes of the Western Alps. (2) In the **Middle Alps**, between Mont Blanc and the valley of the Adige (Ger. Etsch)—(*a*) the **Great St. Bernard Pass**, between the valley of the Rhone and the north-west of Italy (Aosta on the Dora Baltea, a tributary of the Po), only a bridle-path. (*b*) The **Simplon Pass**, a much more important pass, now crossed by a fine carriage-way, between the Rhone valley and the valley opening on the west side of the Lago Maggiore. (*c*) The **St. Gothard Pass**, another carriage road, between the valleys of the Reuss (head of Bay of Uri) and Ticino. (*d*) The **Splügen Pass**, between the valley of the Hinter-Rhine (in which the road passes through the fearful gorge of the Via Mala) and the valley leading down to the Lake of Como. (*e*) The **Maloja Pass**, between the head of the valley of the Inn (East Switzerland) and another valley leading down to the same lake. (*f*) The **Furca Pass**, between the head of the Rhone valley and that of the valley of the Reuss—the most important of all the passes connecting longitudinal valleys. (3) **In the Eastern division:** (*a*) the **Brenner Pass**, connecting the two great valleys of Tyrol, that of the Adige in the south (with the town of Trent) and that of the Inn in the north, where the road leading from the pass crosses the Inn at Innsbruck.[1] (*b*) The **Semmering Pass**, between Lower Austria and Styria, on the route from Vienna to Trieste. The Mont Cenis, St. Gothard, Brenner, and Semmering Passes are now largely superseded by railways piercing the Alps by tunnels. The Mont Cenis tunnel, however, lies fifteen miles to the south-west of the pass from which it takes its name. The St. Gothard tunnel is the longest in the world—nearly ten miles in length.

---

[1] See section across Europe, p. 63.

[2] An *avalanche* is a fall of a mass of snow, and often works great destruction. The mere agitation of the air caused by an avalanche has been known to uproot trees.

Though lying between two populous regions, the Alps themselves are necessarily thinly populated. **The principal occupation of the people is rearing of cattle**, for which the rich pastures, nourished by the plentiful rains characteristic of mountainous regions,[2] and the moisture derived from the melting snows, afford abundant food. The limit in height of permanent habitation is about 6,000 feet, this being also the limit of forests, which serve as a protection not only against avalanches but also against the washing away of the soil by torrents and torrential rains. The zone between 2,000 and 6,000 feet in height is known as the **Fore-alps**. From 6,000 feet to the snow-line,[3] about 9,000 feet (rather higher on the southern slopes), is the zone of the **alps** in a special sense—that is, mountain pastures grazed by cattle in summer, pastures on which the only woody growths are crooked and stunted pines and a few shrubs, above all the beautiful Alpine roses (rhododendrons). This is the zone of the châlets or summer-huts of the Alpine herdsmen. The highest zone of all is that of **perpetual snow**, and the scene from one of the higher peaks overlooking this zone is very different from what might be expected from the aspect presented to spectators at the base. Instead of a continuous line of peaks one sees a broad plateau rising everywhere into billowy crests, all snow-wrapt, or only here and there exhibiting a surface of naked rock.

SWITZERLAND.

Approximate latitude: middle point, 47° N.; longitude, 8½° E.

Switzerland occupies the heart of Europe. Its area is less than one-fifth of that of Great Britain, and its population is less than three millions. Altogether about five-sevenths of the surface is divided between the Alps, in the south and east, and the **Jura** in the north-west, while the remainder forms a plain or rather a hill-studded plateau stretching north-east from the Lake of **Geneva** to **Lake Constance** (German, Bodensee). The length of the plateau, which contains most of the agricultural land and the majority of the population of Switzerland, is about 100 miles, and its average breadth from twelve to twenty miles.

---

[1] Ger. = Inn-bridge.

[2] See Introd. p. 52 (3) (*a*).

[3] See Introd. p. 53.

Of the surface occupied by mountains the part belonging to the Alps is four times as great as that belonging to the **Jura.** The latter consists of a series of nearly parallel mountain chains, which begin in the south-west (in France, where they have their highest peaks), and extend north-eastwards along the north-west borders of Switzerland into Germany, the average height of their crest gradually diminishing from about 4,000 to 2,000 feet. They are mostly composed of a light-coloured limestone,[1] in which there are numerous caverns, and in which the streams often disappear into underground channels.[2] Unlike the Alps, they have few peaks rising very far above the general height of the crest, and few transverse valleys.[3] The longitudinal valleys are bleak, high-lying depressions. The Jura Mountains agree with the Alps in having the more gradual slope to the north-west (the outside of the curve), so that the more abrupt descent in this case is towards the Swiss plateau.

Since the **Alps** form the great water-parting of Western Europe,[4] the **rivers** of Switzerland flow outwards in all directions—the **Rhine** to the German Ocean, the **Rhone** to the Gulf of Lions (west of Italy), **tributaries of the Po** and **Adige** to the Adriatic, the **Inn** to the Danube, and hence to the Black Sea. Almost all the Swiss rivers are too impetuous for navigation except by small craft, but they are much used for floating timber from the mountains. The **Aar**, the Rhine tributary which traverses the plateau, becomes navigable on leaving Lake Thun. About midway

---

[1] The limestone of the Alps is generally of a dark colour.

[2] 'No whisper, nor murmur, nor patter, nor song of streamlet disturbs the enchanted silence of open Jura. The rain-cloud clasps her cliffs, and floats along her fields; it passes, and in an hour the rocks are dry and only beads of dew left in the Alchemilla leaves,—but of rivulet or brook,—no vestige, yesterday, or to-day, or to-morrow. Through unseen fissures and filmy crannies the waters of cliff and plain have alike vanished, only far down in the depths of the main valley glides the strong river unconscious of change.'—RUSKIN. See Introd. p. 29

[3] See p. 202 *n.* 3.

[4] See p. 154.

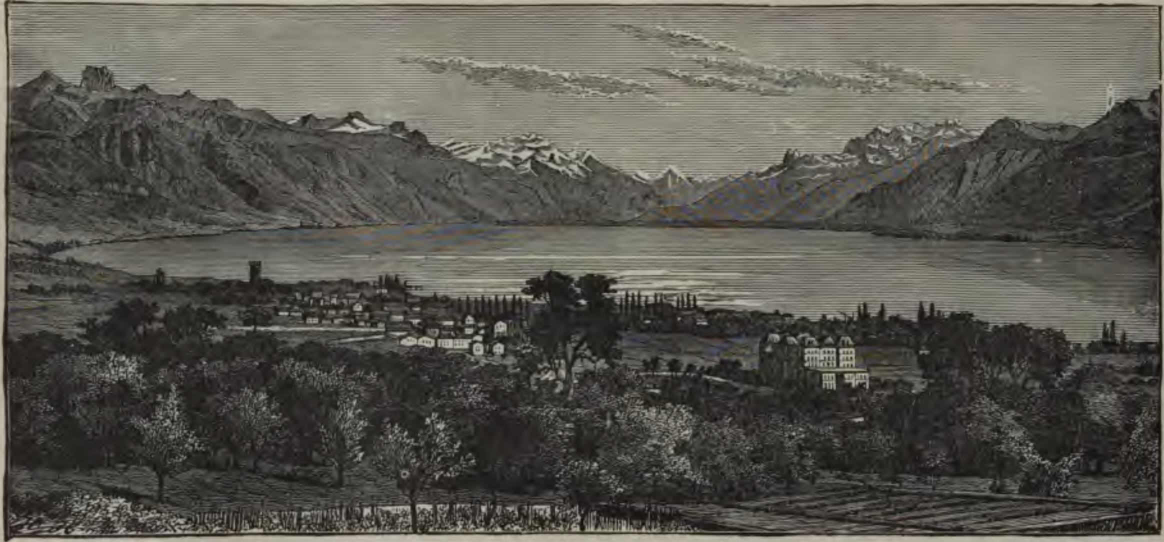


FIG. 34.—THE LAKE OF GENEVA.

between that lake and the Rhine it is led by an artificial channel into the **Lake of Bienne**, so as to protect the lower part of its course from inundations.[1] The numerous **lakes**, partly on the north of the Alps (**Geneva**, **Brienz**, and **Thun**; **Lucerne**, **Zürich**, **Wallenstadt**, **Constance**, &c.), partly on the plateau (**Neuchâtel** and **Bienne**), are important as means of inland communication, while those of the Alps are all celebrated for the beauty of the surrounding scenery.

Besides the crops grown in England, Switzerland produces in the warmer parts **maize**, **wine**, and **tobacco**. The **vine** flourishes even to the height of 2,000 feet, and is grown principally in the south-west and the north-east (round the Lakes of Geneva and Zürich). The products of the pastures are more important than those of the fields and vineyards, and **cheese** forms a large export,[2] an export that is increasing at the expense of field produce, since the railways of modern times are giving increased value to the products of the Swiss mountain pastures, and making it increasingly easy for Switzerland to obtain supplies of grain from abroad. But with an average population of 180 to the square mile, and nearly a third of the area unproductive, the soil of Switzerland alone is unable to sustain the inhabitants, and great quantities of **grain and other agricultural produce** have to be **imported**. This import is balanced chiefly by an **export of manufactured goods**, Switzerland, notwithstanding its scarcity of minerals, and in particular of coal and iron, having a high place among the manufacturing countries of Europe.

For such industries, it has two advantages to place against its disadvantages: (1) the water-power of the Alps, which is more largely utilised in Switzerland than elsewhere; (2) its central position between populous and highly civilised countries. The chief manufacturing industries are **cotton** (in the north-east), and **silk** (in Zürich and Basel). **Watchmaking** is an important handicraft in the **Jura**, and **Geneva** is the centre of the Swiss trade in watches.

The divisions of Switzerland, 22 in number, are known as **cantons**, the largest of which, the **Grisons**, is about the same size as the English county of Lincoln. Though none of them has a single town with 100,000 inhabitants, they are all, to a certain extent, independent states, managing their own local affairs as little republics,[1] but all uniting to form a **Confederacy** for the regulation of affairs common to the whole. The Confederacy, as it now exists, originated in the present century, and the different cantons composing it had a different history, as they still differ in language, religion, and culture. **German** is spoken by more than two-thirds of the people, **French** by almost one-fifth (chiefly in the south-west), **Italian** in Ticino and some other southern valleys, and in the south-east a few thousands speak **Rumonsh**, a language peculiar to the locality, an independent descendant of the Latin. About three-fifths of the entire population are **Protestants**, the remainder **Roman Catholics**, the latter inhabiting chiefly the more mountainous cantons.

---

[1] See Introd. p. 31.

[2] Gruyère cheese is made in the canton of Freiburg, in western Switzerland.

The Protestant cantons are by far the most advanced in culture, and the encouragement given chiefly through their influence to education (which is obligatory to a certain extent in all cantons) is one of the chief causes that have enabled this little country to triumph over the obstacles to the development of manufacturing industry within her borders. There are four universities; and at Zürich there is one of the best-equipped technical schools in Europe—a school in which students are taught everything connected with manufactures, as well as agriculture, forestry, building, and engineering.

Chief Towns.—There are only three with more than 50,000 (including suburbs). **Zürich**, the intellectual and commercial centre of German Switzerland, is situated at the lower end of the lake of the same name, its suburbs extending for several miles along both shores of the lake. Its commercial importance is largely due to the fact that it is the first considerable town in Switzerland both on the road and railway through the heart of the country by way of the St. Gothard to the south, and on the road across the Splügen Pass farther east. **Basel**,[2] at the bend of the Rhine[3] and the head of the fertile valley lying between the Vosges and the Black Forest, has been a place of consequence since the time of the Romans, and is noted for its manufacture of silk ribbons. **Geneva**, at the south-west end of the lake of the same name, at the point where the Alps and Jura almost meet, is the intellectual centre of French Switzerland, and a favourite place of residence for strangers. In the early part of the sixteenth century it was the residence of Calvin, the founder of one of the chief Protestant sects of the Continent, and was then practically under his sway. **Bern**, on the Aar, has been chosen as the seat of the legislature of the Confederacy, chiefly on account of its central position. The seat of the supreme courts of law is **Lausanne**, on the north shore of the Lake of **Geneva**. **Lucerne**, at the lower end of the lake of the same name, and **Interlaken**,[1] on the plain between the Lakes of Thun and Brienz, though both small places, are well known throughout the western world as the head-quarters of the numerous visitors who make the mountains of Switzerland their holiday-ground. Of these there are known to have been nearly a million and a half in a single year. Within sight of Lucerne, on the shores of the lake, is the **Rigi**, a mountain ascended by crowds of tourists for the sake of the magnificent views which its summit commands. Its top can now be reached by railway.

---

[1] Only one, Neuchâtel (Ger.=Neuenburg, both names meaning New Castle), formerly had a monarchical form of government, being subject to the King of Prussia.

[2] A German-speaking town, but more familiarly known in this country by its French name of Bâle, from the fact that the English usually reach it through France.

[3] See Introd. p. 61 (2) (*b*).

AUSTRIA-HUNGARY.

Approximate latitudes: (south-west extremity of England), Prague, Cracow, 50°; (Munich), Vienna, 48°; (Lyon, Milan), Trieste, 46°.
Approximate longitude: 10° to 26° E.

Austria-Hungary is the second in size and the third in population among the great states of Europe. Of all these it is that which has the smallest length of coast-line. The **coasts** are almost everywhere steep and rocky. Opposite Dalmatia, the long strip on the east of the Adriatic, is a row of rocky islands, the northernmost of which form the eastern boundary of the stormy Gulf of Quarnero (with the seaport of Fiume). On the other side of the peninsula of Istria is the more sheltered Gulf of Trieste, with the much more important port of Trieste at its head.

In most parts Austria-Hungary is without natural boundaries. The **surface** is composed of extensive mountainous areas, extensive plateaux, and extensive plains, the last lying in the interior. In the west, the chief mountain area is that of the **Alps**, which in the south are connected by a series of arid limestone plateaux with the Dinaric Alps and the mountains of the Balkan Peninsula. With the exception of the **Hohe Tauern**, the central range of the Alps beginning immediately to the east of the Brenner Pass, a range in which the chief peaks rise to upwards of 12,000 feet, all the Austrian Alps can easily be crossed at almost any part. All the important streams from these western and south-western mountains flow down to the right bank of the Danube.

On the opposite bank of the Danube lies in the first place a **series of mountain-girt plateaux** embracing Bohemia, Moravia, Austrian Silesia, and parts of Upper and Lower Austria. On the east of this highland area a relative depression of about 1,000 feet in height, known as the **Moravian Gate**, separates the Sudetes[2] from the **Carpathians** and forms an important line of communication between north and south in this part of Europe. It leads along the valley of the **Morava** directly down to the point where the Danube valley, the great line of communication between the east and west, begins to open out into the plain of Upper Hungary. The slope of this series of plateaux is different in different parts. The west (Bohemia) is drained northwards by the **Moldau** and **Elbe**, the east chiefly southwards by the **March** or **Morava.**

---

[1] 'Between the lakes.'

[2] See p. 192.

East of the Moravian Gate the **Carpathian Mountains** sweep round in a semicircle of about 1,000 miles in length from the north to the east of Hungary, and both in the north and east have on the interior parallel ranges or tortuous spurs extending for a great distance into the plain. In the north the inner range, called the **Tatra**, is the loftiest and most rugged part of the whole system, the mountain sides being mostly too precipitous for the accumulation of perpetual snow or glaciers. The eastern assemblage of mountains forms the province of **Transylvania.** The narrower and lower connecting portion in the middle (in the north-east of Hungary) is known as the **Forest Carpathians.**

The great **plains** of the empire lie chiefly to the east of the Danube (in the area watered by the **Theiss** and its tributaries) and along the banks of the **Drave** (Drau[1]) and **Save**, the chief tributaries of the Danube on the right bank. The former area, one almost unbroken plain more than half the size of England and Wales, is the region of the Hungarian **pusstas**, a region which is in winter a succession of morasses or storm-swept snow-wastes, in spring a carpet of green, in summer a scorched and withered desert. Permanent morasses of great breadth border the Theiss and its tributaries.[2] The principal occupation of the people in this region is cattle-rearing, and the rods and poles of the wells for the cattle are in many places the most conspicuous features in the landscape by day, as the fires of the shepherds are by night.[3] But there are also large areas fit for agriculture, and above all in the district known as the **Banat**, the square enclosed by the Maros, Theiss, Danube, and the mountains of Transylvania, a region covered with a rich soil which brings forth the most abundant crops of **wheat** and **maize**, together with those of a more southerly climate (**cotton, rice**).

---

[1] The German name.
[2] See p. 28.
[3] See cut, p. 213; also p. 52.

The wide low-lying valleys of the Drave and Save bring forth luxuriant crops of wheat and maize as well as good wine.

Outside the Carpathians is the plateau of Galicia and **Bukovina**,[1] drained partly by the Vistula and its tributaries, partly by affluents of the Dniester (average height 1,000 feet).

From the structure just described it will be seen that by far the greater portion of the Austro-Hungarian Empire is drained by the **Danube**, which being navigable for steamers throughout its course within the Austrian dominions is an important channel of trade. The chief tributaries are likewise navigable for steamers for a large part of their course.

The principal lakes of the Austrian Empire are Lake **Balaton** (German Platten-see[2]) and the **Neusiedler-see**, in the west of Hungary, the former among the hills to the west of the Danube, where it flows from north to south, the latter in the plain of Upper Hungary south of the Danube.

Austria-Hungary is mainly **an agricultural state.** About three-fourths of the people are dependent on agriculture, and, though the methods of cultivation are not very advanced, **grain** (more especially **wheat**) is an important article of export in all ordinary years. **Fruit** and **wine** are likewise abundantly produced. **Manufacturing industries** are relatively insignificant except in Vienna and the north-west strip (from Bohemia to beyond Cracow), where the presence of coal and iron furnishes the means of carrying on manufactures on a large scale. Among the **mineral products** are the precious metals (in the production of which Austria-Hungary is surpassed only by Russia among European states), and salt. In the north of Hungary **opals** are obtained.

The **commerce** of Austria by sea is almost confined to the Mediterranean.

None of the great states of Europe is more diverse in **race and language** than Austria-Hungary. The people in the west are chiefly of **German** origin and speak the German language; but elsewhere the majority of the people are **Slavs**. The ruling race in Hungary is that of the **Magyars**[3] (whose language still survives), and in the east of the empire the Jews form an influential and rapidly increasing element of the population, having

---

[1] 'Land of Beeches,' so called from the immense extent of its beech forests.

[2] *See* is German for lake.

[3] See p. 159.

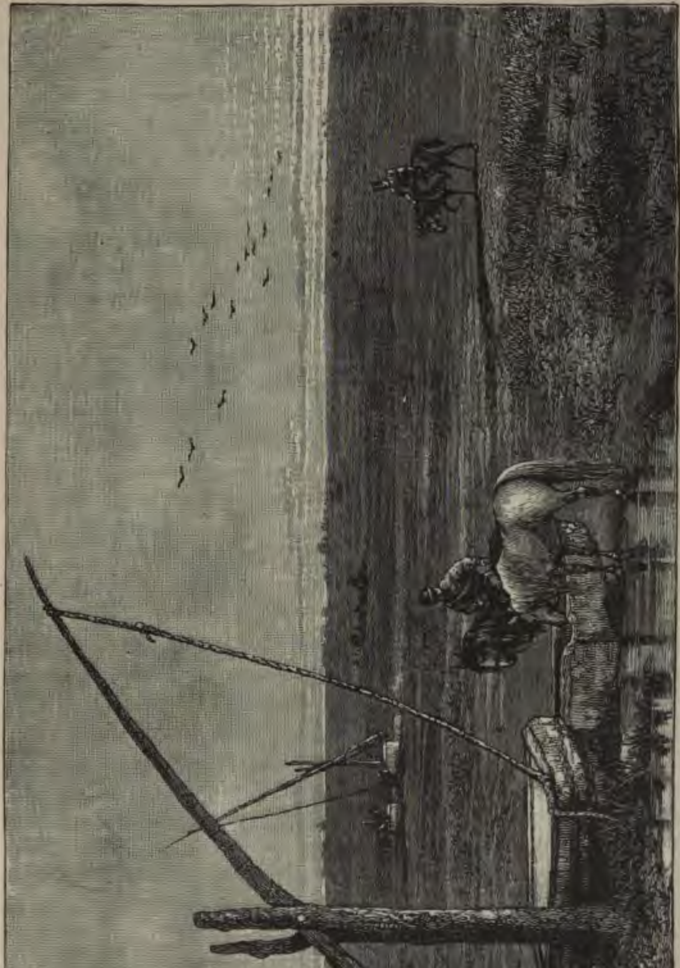


FIG. 35.—SCENE IN THE HUNGARIAN PUSSTAS. (By the kind permission of Mr. Edward Stanford).

the command of the entire trade. Intellectually the Germans are the most advanced section of the population. As this section decreases in number towards the east, so also does the general level of intellectual culture decline, and with it the state of agriculture and manufacturing industry. The **most thickly populated** parts of the empire are the plains on the Danube, along the spurs of the Alps, and the manufacturing strip in the north.

The diversity of the political divisions and the complexity of the government correspond to this variety of race and language; and these differences are indications of the manner in which the monarchy grew. The great **political divisions** having historical names and designations (Archduchies of Austria, Kingdoms of Hungary, Bohemia, &c.) are mainly the representatives of once independent states, which have been successively added entire to the possessions of one reigning family, that of the Hapsburgs, who acquired the sovereignty of the archduchies of Austria in 1282, and that of the kingdoms of Bohemia, Moravia, and Hungary in 1526.

The **Government** is a limited monarchy, and there are various Parliaments. First, the crown-lands or political divisions just referred to are divided into two great groups, one of which comprises the territory enclosed by the Carpathians on the north and east, bounded mainly by the Save and Danube on the south and by the Alpine provinces in the west, while the other comprises all the rest. The latter are called the **Cis-Leithan**, the former the **Trans-Leithan** crown-lands, from the Leitha, a small tributary of the Danube on the right bank on the frontier of Lower Austria. Each of these groups has a Diet or Parliament to legislate on matters common to the members of the group, and each of the crown-lands has a separate Diet for local affairs, while affairs common to the whole empire are debated in an assembly composed of delegates elected in equal numbers by the Cis-Leithan and Trans-Leithan Diets.[1]

In **religion** the inhabitants of Austria-Hungary are more uniform than in race, language, and government. Nearly four-fifths of the people are Roman Catholics; of the remainder, a large proportion Protestants, another large section Greek Catholics.

---

[1] The province of Bosnia and Herzegovina is not included in either of the groups mentioned. See Balkan Peninsula, p. 254.

Towns[1] **and Districts.—1. Upper and Lower Austria** and the **North-western Plateaux.**

VIENNA (720; including suburbs 1104) in **Lower Austria**, originally a stronghold to defend the eastern entrance to the narrow valley of the middle Danube, founded in the fourth century to replace the more ancient (Roman) stronghold of *Carnuntum*, farther east; restored in the twelfth century, since which period it has constantly grown in importance, not only in consequence of its being the political centre of the growing Austrian dominions, but also on account of its admirable situation for commerce. The advantages of its situation in this respect are due (1) to the fact that here the navigation of the Danube, which, above Vienna, passes through a long series of rapids and narrows, begins to be more convenient; (2) that it lies at the point where trade routes are left open between the three great highland areas of the monarchy, a westerly route along the valley of the Danube between the Alps and the north-western plateaux (a route communicating with South Germany and the Rhine), and a northerly route, communicating with East Germany, through the Moravian Gate, between these plateaux and the Carpathians; (3) that it lies on the point of the Danube nearest the head of the Adriatic, between which and Vienna the Alps are easily traversed, so that it serves as a centre in the trade between the plains of Eastern Europe and the Mediterranean.[2] At the present day Vienna is not only the capital of Austria, but the seat of one-seventh of the manufacturing industries of the empire, of a great university with a world-renowned medical school, a great art centre and money market. In Upper Austria[3] the chief town is **Linz.**

Bohemia, the lozenge-shaped province in the north-west, the drainage of which is to the North Sea, has an area about two-thirds of that of Ireland, with a population considerably larger (about 300 to the square mile). Active manufacturing industry and advanced agriculture combine to give it this dense population. The sheep reared on the upland pastures, and the flax grown in similar situations, have long fostered the **spinning and weaving of wool and linen**, to which in more recent years, since the development of machine factories and the opening of coal-mines, **cotton manufactures** have been added. The extensive forests (covering in all nearly a third of the surface) have furnished material for another important industry, the making

---

[1] There are only twelve towns in Austria-Hungary with more than 50,000 inhabitants.

[2] Now greatly promoted by the railway across the Semmering Pass (see p. 205).

[3] In this province lies the district known as the *Salzkammergut*, 'the estate of salt chambers,' the district from which Austria-Hungary derives a great part of its salt.

of glass,[1] for which Bohemia has long been celebrated. Though the chief mineral wealth of the Erzegebirge is on the German side, there are on the Bohemian side some mines of tin and silver in this range, the latter in Joachimsthal,[2] whence the silver thaler[3] obtained its name, and here also are the famous **mineral springs** of Marienbad, Franzensbad, and Karlsbad.[4]

The chief town is **PRAGUE**, a strongly built town in the centre of the province, where the Moldau begins to be navigable for larger vessels, and its valley is crossed by the road from northern Bavaria to Moravia. It is the seat of the oldest university in Central Europe (founded in 1348). No other town contains more than 50,000 inhabitants.

The population in **Moravia** and **Silesia**[5] is of about the same density as that in Bohemia, and the products are similar.

Brünn, at the confluence of the Schwarzawa[6] and Zwittawa, near a coal-field, is an important industrial centre; chief manufacture, woollens.

2. **The Alpine Provinces.**—Among these the population is comparatively thin, and there are few considerable towns.

The chief products of the Alpine provinces are those of the hill pastures. In the more open valleys and on the hill slopes to the east (southern Styria) there are extensive tracts of fertile land, bearing wheat, maize, fruit, and wine. In the valley of the Etsch (Adige), the largest transverse[7] valley in the Alps, there is more of an Italian than a Central European aspect. The products include silk, besides wine and fruit, and the Italian language is spreading farther north every day. In North Styria there are large quantities of iron. The **Erzberg** is almost one mass of hæmatite,[8] and in summer ore can be quarried, being worked in shafts only in winter.

Graz, on the Mur (trib. Drave), in Styria, now an important railway centre, is the only town with a population approaching 100,000, and is the largest in the Alps. **Salzburg**, picturesquely built between two hills, has long been of some importance as the starting-point of a route across the Alps leading into that which crosses the Brenner Pass. **Innsbruck** and **Trent** are the two towns of importance north and south of the Brenner Pass in Tyrol.

---

[1] Wood ashes yield potash, which is largely used in this manufacture.

[2] *Thal* (pronounced *tal*) German = dale or valley.

[3] The thaler was a coin in general circulation in Germany till within the last few years.

[4] *Bad*, German = bath.

[5] Austrian Silesia is only a small remnant of the large province of that name, which once belonged to Austria, but the greater part of which was wrested out of Austrian hands by Prussia in the last century.

[6] *-awa*, a Slavonic termination signifying stream.

[7] See p. 202 *n.* 8.

[8] A very rich kind of iron ore.

3. The Provinces bordering on the Adriatic.—Here, in Carniola, Istria, Western Croatia, and Dalmatia, limestone is the predominant rock, and as the hill slopes have been almost wholly divested of forests,[1] the surface is liable to be stripped of its soil by occasional floods and torrents of rain, and is left exposed to the piercing north and north-east winds (the **bora**). These blast the vegetation, which a blazing sun is at other times apt to scorch. Everywhere in this region rivers disappear in fissures; and caves, underground lakes, and temporary surface lakes[2] are numerous. Only here and there are fertile tracts in bowl-shaped depressions, (probably due to the fall of cavern roofs[3]), where the soil cannot be washed away. Elsewhere crops are rare, and the thin pastures are grazed mainly by goats and sheep. The population is accordingly scanty, and is mostly confined to the coast, where the barrenness of the land drives the inhabitants to the sea for their maintenance. Hence the islands and the borders of the inlets of the Dalmatian coast are peopled by fishermen, from among whom the Austrian Navy obtains its best seamen.[4]

Of the two chief seaports on this coast, **Fiume**, at the head of the Gulf of Quarnero, belongs to the Trans-Leithan provinces, the government of which is endeavouring to promote its growth at the expense of **Trieste**, the Cis-Leithan port, which is still by far the most important seaport of Austria. The latter town has a fine roadstead and relatively easy communication with the interior, but though it has doubled its population in the last forty years, it has latterly been somewhat checked in its growth by the revival of Venice and the growth of Fiume. It is the head-quarters of the Austrian Lloyd's, a ship building company that carries on a large trade with the Levant. The town itself occupies but a narrow strip between the sea and the edge of the Istrian plateau, the top of which is now occupied by numerous suburbs. The population is almost entirely Italian in speech.

---

[1] Felled in former times to supply timber for the fleets of Rome and afterwards of Venice. The most desolate part of the region described in this paragraph is known as the *Karst*.

[2] Such lakes have communications with underground cavities and form on the surface only when the latter are full to overflowing. *Zirknitz* is the largest lake which is thus from time to time formed and drained away.

[3] See Introd. p. 29.

[4] Compare Brittany (p. 181) and Norway (p. 230). Like the Norwegians of the tenth and eleventh centuries, the Dalmatians (or Illyrians, as they were anciently called) were notorious for their piracy at different periods in history, the numerous creeks on the coasts of both countries affording retreats which facilitated piratical operations.

4. Galicia and Bukovina (the former acquired about 100 years ago at the division of Poland,[1] the latter from Turkey) are similar in physical features but differ in population and religion. Galicia is inhabited chiefly by Roman Catholic Poles, Bukovina by Ruthenians (another Slavonic people), adherents of the Greek Church. Both provinces are rich in agricultural produce, and in timber, salt, and petroleum.

Cracow, on the Vistula, in the west of Galicia, formerly a residence of kings of Poland, still has a Polish university, and so too has **LEMBERG**, in the east. At **Czernowitz**, the capital of Bukovina, there is a German university recently founded. Near Cracow are the celebrated salt-mines of **Wieliczka.**

5. Hungary and Transylvania, Croatia and Slavonia.[2]—Most of the towns in the Hungarian plains are more like large villages than towns. They are each spread over a wide area, with large spaces between the houses, and have few public buildings or paved streets, for which, as well as for roads, the country is scantily supplied with materials.

The capital of Hungary is the double town of **BUDA-PEST** (360), on the Danube, the Magyar town of Pest on the left bank (subject to inundations), and the German town of Buda or Ofen on the right bank. The town lies at the foot of the last hills bordering the banks of the Danube, where for the last time the river can be conveniently bridged before it spreads out over the marshy plain[3]; and this position early made it the centre of commerce for Hungary. Its growth has been greatly accelerated since the revival of Hungarian nationality in recent times; the population of Pest almost trebled itself in the thirty years 1850–1880. Next in population to Buda is **Szegedin**, the only important town on the Theiss (at the confluence of the Maros), now an important railway centre. In 1879 it was to a large extent destroyed by an inundation, which was partly ascribable to the works that had been executed to prevent such disasters in the upper part of the course of the river. **Debreczin**, farther north, is the centre of the pusstas on the Upper Theiss. **Temesvar**, the chief town of the Banat, south-east of Szegedin, is another important railway centre, and stands at the head of a shipping canal communicating with the Danube. In **Transylvania** the chief town is **Klausenburg**, in the principal valley leading down to the plains of Hungary. In Croatia, **Agram**, on the Save, is the principal town, and it is the seat of a Slavonic university.

---

[1] See p. 224 *n.* 1.

[2] These provinces, together with Fiume and its territory, make up the Trans-Leithan crown-lands. Hungary and Transylvania together constitute one crown-land, Croatia and Slavonia another.

[3] See Introd. p. 61 (2) (*c*).

THE EASTERN EUROPEAN PLAIN: RUSSIA AND ROUMANIA.

Approximate latitudes: (south of Shetland Islands, Christiania), St. Petersburg, 60°; (Edinburgh, Copenhagen), Moscow, 56°; Odessa, Astrakhan, 47°; (mouth of Po) mouth of Danube (western end of Caucasus Mountains), 45°.

Approximate longitudes: west of Poland, 18° E.; Ural Mountains, 60° E.

I. RUSSIA.—Russia, which, including Finland, has an area of upwards of two million square miles, or twenty-three times that of Great Britain, occupies the whole of the east of Europe between the Arctic Ocean and the Black Sea.[1] In the north the shallow **White Sea** communicates with the former, and in the south the still shallower **Sea of Azof** with the latter. The western coasts all line the Baltic and its branches (**Gulfs of Bothnia, Finland**, and **Riga**), and in some places are bordered by a breastwork of small islands. On the south-east there is the inland **Caspian Sea.** Almost everywhere the coasts are low and flat.

The only great mountain range is that of the **Urals**, which extend for about 1,400 miles from north to south in the east, and these, though they rise in some places to upwards of 4,000 feet in height, slope up with such gentle undulations from the European plain, that their mountainous character cannot always be recognised. Especially is this the case towards the south, where one may follow the **great trade route** which crosses these mountains at the height of 1,000 feet, in about lat. 57°, **between Perm and Ekaterinburg,**[2] without ever perceiving that a mountain range has been traversed. Hence in this part the Ural Mountains do not form a political boundary, European Russia extending 200 miles beyond them. West of the Ural Mountains Russia may be regarded as one vast plain, though the highest part of it rises to 1,100 feet above sea-level. This elevation is reached in the central plateau of the **Valdai Hills**, from which the principal rivers of Russia radiate,[3] and from which the descent is so gradual that it is impossible to fix a boundary between plain and plateau. So level is the surface, that the water (as in Ireland) is apt to collect in marshes, and all the rivers occasionally overflow their banks. The **Pinsk** or **Rokitno Marshes**, traversed by the Pripet, a tributary of the Dnieper, cover an area greater than that of Ireland, but are now in process of being drained.

---

[1] The large uninhabited Arctic islands of Novaya Zemlya or Nova Zembla ('New Land') and the Spitzbergen group are considered part of European Russia.

[2] Now connected by railway. See p. 264.

[3] See p. 154.

In the south-east, north and west of the Caspian Sea, is a considerable **area below the sea-level**, the surface of the Caspian itself being eighty-three feet below that of the Black Sea.

From this structure of the land it results that the rivers of Russia are of much more importance than its elevations. Among these is the longest river in Europe, the **Volga**, whose basin is larger than any two countries in the continent except Russia itself, even that of one of its great tributaries, the **Kama** (left bank), being almost as large as France. All the rivers are rich in fish, among which the **sturgeon** of the Volga and its tributaries (as well as the Caspian) is especially prized.

As means of communication the rivers of Russia are of great value on three grounds. (1) Having a gentle fall, all the chief rivers and their larger tributaries are navigable almost to their source. (2) They flow from the heart of the country to all the Russian coasts. (3) They are easily connected by canals.[1] As against these advantages it must be noted that all the great rivers of Russia suffer from certain drawbacks—some from one, some from others. (1) The longest, the **Volga**, ends in an inland sea. (2) Of those which flow to the southern coast, the **Don** traverses the driest part of the country and hence is deficient in water, and the Sea of Azof, into which it falls, is itself too shallow for large vessels; the **Dnieper**, the **Dniester**, and the **Bug** all have to cross a granite plateau where the navigation is impeded by **rapids** (on the Dnieper over a course of twenty-three miles). Rapids also impede the navigation of the **Neva** above St. Petersburg. (3) The rivers of the north (**Northern Dwina** and **Petchora**), though fine full-flooded streams, traverse a part of the country less rich in products than those of the south, and terminate in a sea difficult of navigation. (4) All Russian rivers have their navigation stopped by ice for a longer or shorter period every year. Even at Astrakhan, at the mouth of the Volga, in the latitude of Bordeaux, the stoppage of navigation lasts for three months. Only the Don in some years escapes being frozen.

In addition to these difficulties besetting the inland navigation there is another hindrance to communication in Russia in the fact that the marshy character of a large part of the surface and the want of road-making material have been adverse to the making of roads, and hence the construction of railways is of peculiar importance in this country. In many parts of Russia travelling is still easiest in winter by means of sledges.

---

[1] See p. 155.

The **lakes** of Russia are relatively as important as the rivers. The principal lie round the Gulf of Finland.[1] **Finland** itself is a large granite plateau, the south of which is more thickly studded than any other part of Europe with lakes, both large and small, all very irregular in outline. **Lake Ladoga**,[2] between Finland and Russia Proper, the largest lake in Europe, is nearly as large as Wales. Next in size are Lakes **Onega** (north-east of Lake Ladoga) and **Peipus** (south of the Gulf of Finland). In the depressed area north of the Caspian are hundreds of small lakes without outlets, useful as sources of supply for **salt**.[3]

FIG. 36.—WINTER TRAVELLING IN RUSSIA.

As regards **climate**, Russia occupies that part of Europe where extremes of temperature are at their greatest[4] and rainfall is least. Astrakhan has a January twenty degrees colder and a July fourteen degrees warmer than that of London; and even Archangel, on the White Sea, which has a January more than ten degrees colder than Astrakhan, has a July as warm as that of the northern coasts of England. The rainfall, though scanty, occurs most abundantly in the summer months,[1] when most wanted, and hence, everywhere, except in the south-east, is sufficient for agriculture.

---

[1] See p. 155. [2] 7,000 sq. miles in extent. [3] See Introd. p. 81. [4] See p. 156.

Vast as the country is, it has a **population** only two and a half times as large as that of Great Britain. The average density is only about forty-one to the square mile, and there are wide areas over which it is much less. The cold of the north and the drought of the south-east cause these regions to be very sparsely peopled, the greater part of the population being thus confined to the middle region, and especially to its western portion. The variations in density correspond to variations in the nature of the products.

Five zones of production may be distinguished. (1) In the extreme north is the region of the **toundras**, where the ground thaws in summer to the depth of at most one foot, and where the only inhabitants are a few thousand Lapps and Samoyedes, who wander about with reindeer herds, as in the north of Scandinavia. This region extends to the south of the Arctic Circle only in the extreme north-east. (2) To the south of that is the **Forest Zone**, where, besides timber, resin, potashes, and other forest products, the chief commodities of trade are furs (from sable, ermine, and other fur-bearing animals). This zone is bounded by an irregular line stretching, on the whole, south-eastwards from St. Petersburg. Forests were recently estimated to cover nearly forty per cent. of the surface of Russia, but they are now being rapidly thinned. In this zone the population is still scanty. (3) The next is the **Industrial Zone**, in the heart of Russia, where agriculture is extensively pursued, but manufacturing industries are also practised to a considerable extent, so that the agricultural products of this region would suffice to support the inhabitants for only about three-quarters of the year. (4) The **Agricultural Zone**, to the south and west of the Industrial, where the agricultural produce is not only sufficient for the inhabitants, but leaves a large surplus for other parts of the country as well as for export. The southern part of the agricultural zone is known as the **Black Earth Region**, from the colour of its soil, which is so fertile that, where it is found and the rainfall is sufficient, grain can be grown with less labour than in any other part of Europe.[1] This region is almost treeless, and its aspect resembles that of the Hungarian pusstas.[2] The part of the agricultural zone in the west of Russia embraces the whole of the former kingdom of Poland,[3] with part of the adjoining districts.

---

[1] See p. 157.

It is in the last two zones, and more particularly in the latter, that the population is densest; but even in these the density is one of the smallest in Europe, both manufactures and agriculture being still very far behind. Only one-third of the entire surface of Russia is under cultivation; and the region in which there is the richest soil is that in which agriculture is pursued with least care.

(5) The last zone is that of the south and south-east, that of the true Russian **steppes**,[4] where agriculture can be pursued only with difficulty, and the inhabitants, largely Tatars and Kalmucks, dwell in tents, and roam over the arid plains with flocks of cattle, horses, and camels, as they do in the precisely similar parts of Central Asia.

The chief **agricultural products** of Russia are **rye, wheat, maize,** and **oats**; but **flax** and **hemp** have greater importance here than in any other country in Europe, and their cultivation is here increasing, while in all other countries in Europe it is declining.

The **mineral** wealth of Russia is chiefly concentrated in the region of the Middle Urals, where excellent **iron, gold,**[5] platinum, copper, and precious stones are found in abundance. The **coal-fields**, which exist on the Donetz (a tributary on the right bank of the Don), round Moscow, and elsewhere, are able to furnish large supplies of coal, but are as yet far from being adequately worked.

Relatively to the population, the **foreign commerce** is not great. Among the exports, **corn** sometimes makes up more than one-half of the total value, and next in importance are flax and linseed and wood. The principal imports are raw cotton, tea, and iron; and the steady increase which has gone on for many years in the first-mentioned import is an indication of the growth that is taking place in the manufacturing industry of the country.

---

[1] The covering of black soil is not continuous, having been washed away to a large extent in the river valleys. [2] See p. 211. [3] See p. 224 *n.* 1.

[4] The term *steppes* is often used in a wider sense to include the whole of the treeless region of Russia.

[5] In the production of gold Russia (including Siberia) is the rival of the United States and Australia.

Though inhabited by many distinct races speaking distinct languages, Russia is to a large extent as uniform in its population as in its surface. Three-fourths of the people are **Russians Proper**, and of the remaining inhabitants the most numerous are the **Poles** in the west, speaking an allied Slavonic language. **Lithuanians**, speaking another language more distantly related to the Russian, form the bulk of the population south of the Gulf of Finland. There are numerous **Germans** in the provinces south of the Gulf of Finland, and many of the towns in that region were founded by Germans before the rise of the Russian power. In Finland the majority of the people are **Finns**, but the most influential section of the population consists of the **Swedes** in the south. To these differences in race correspond for the most part the differences in **religion**. All the Russians Proper are adherents of the **Greek Church**, while the Poles and inhabitants of the Baltic provinces are mainly **Roman Catholics**, and the Finlanders are chiefly **Protestants**. In Poland the difference of religion is one of the causes of the still surviving feeling of hostility between Poles and Russians ; but the chief cause is to be found in the fact that Poland,[1] after having long been what Russia now is, the greatest of the Slavonic states, was, towards the end of last century, overthrown, and its territory divided by Russia, Austria, and Prussia.

In the great plain occupied by Russia extensive territories have always been under one rule ; but the growth of the present empire of Russia dates only from the second half of the fifteenth century, when the Grand Prince of Moscow conquered the western dominion of Novgorod.[2] From that time the growth of the Russian Empire has been almost constant, and, though it has received a check in Europe, it is still progressing as rapidly as ever in the plains of Asia, so that the territory of the empire now covers an unbroken area almost as large as the aggregate total of the United Kingdom with its colonies.

---

[1] Poland once comprised not only what is now known as Poland in Russia (the part which was formerly called the Kingdom of Poland and had till 1864 a separate government with the Emperor of Russia as king), but also many of the adjoining provinces of Russia, together with Posen and other parts of the present kingdom of Prussia, and Galicia, Bukovina, and some smaller districts now belonging to Austria.

[2] This town, situated at the outlet of Lake Ilmen, in a river valley immediately to the west of the Valdai plateau, is now of no great importance, but was in the Middle Ages one of the principal centres of commerce in Eastern Europe and a leading member of the Hansa (see p. 196 n. 2). Its decline dates from the event mentioned in the text, and was completed by the foundation of St. Petersburg.

The Czar, or Emperor, is an absolute monarch everywhere except in Finland, which has a constitutional government, the Emperor of Russia being there a limited ruler with the title of Grand Prince.

Towns.—1. Coast towns.—The principal seaports of Russia are on the gulfs communicating with the Baltic.

ST. PETERSBURG (900), on the Neva, at the head of the Gulf of Finland, the present capital of Russia, yet a town of quite modern origin. It was founded by Peter the Great in 1703 in the midst of unhealthy marshes and dreary wastes, these disadvantages being counterbalanced in the eyes of its founder by the importance of having the seat of government on the sea, so as to facilitate communication with the more civilised powers of the West. Till the latter part of 1885, when a large ship-canal through the shallow end of the Gulf of Finland to the Neva was opened, it was not even a seaport except for small vessels, although its position as capital, the canals connecting it with all the navigable rivers of Russia, and the more recently constructed Russian railways had already made it the principal seat of commerce in the empire. Before the opening of the canal, **Cronstadt**, the impregnable fortress on a small island in front of St. Petersburg, the principal naval station of Russia, was indispensable as the port of St. Petersburg for large shipping. **RIGA**, at the mouth of the Western Dwina, on the gulf named after it, the old capital of Livonia, is the second seaport in Russia, and carries on a similar trade to the east German ports of Danzig, Königsberg, and Memel,[1] but above all in flax. **Revel**, an old German town, on the south shore of the Gulf of Finland, is of less importance. Opposite on the north shore is **Helsingfors**, the present capital of Finland, seat of a university.

On the Black Sea are **ODESSA**, a rapidly rising seaport between the mouths of the Dniester and Bug, the chief seat of export of the wheat and other grains of South Russia; **Nikolaief**, near the mouth of the Bug, the chief naval station on the Black Sea; **KHERSON**, near the mouth of the Dnieper; **Kertch**, at the mouth of the Sea of Azof. **Taganrog**, at the head of that sea, a little to the west of the mouth of the Don, is accessible only for small vessels.[2] **Sebastopol**, in the west of the Crimea, is of importance not as a seaport but as a fortress, and till 1855, when it was taken by the allied armies of the English and French, was considered impregnable.[3] The rocky coast on the south-east of the Crimea, at the base of the Yaila Mountains, has numerous small seaports, and, being protected by this mountain range from the cold winds from the north,[4] is remarkable for the contrast which its rich vegetation, quite Mediterranean in its aspect, presents to the dreary steppes occupying the greater part of the peninsula.

Astrakhan, on the delta of the Volga, is the centre of trade with the Persian coast, and **Archangel**, at the mouth of the Northern Dwina, the principal port on the White Sea.

---

[1] See p. 198.

[2] See p 220.

[3] Its fortifications, destroyed after the Crimean war, have since been restored.

[4] See Introd. p. 52.

2. Inland Towns.—Small wood-built[1] villages, thinly scattered over the surface, are a characteristic feature in the Russian plain; larger towns are few in number, and many of these have, like those of Hungary, the appearance of aggregates of villages rather than towns proper.

In the Volga basin the chief town is **MOSCOW** (750), in the heart of Russia, on the Moskva, where it begins to be navigable, formerly the capital of the country, still the chief seat of its manufacturing industry, and next after St. Petersburg the principal commercial centre of the empire; also seat of the most largely attended of Russian universities. It is largely built of wood, but the gilded domes and pinnacles of its churches, and in particular those of the Kremlin, the old seat of the Czars, a walled enclosure full of churches and palaces, give it a very picturesque and striking appearance. Between **Kaluga** and **Tula**, south of Moscow, is an important coal-field with iron ores, and the latter town is an important centre of the manufacture of arms and hardware. **Nizhni-Novgorod**, at the confluence of the Oka and Volga, has not a large stationary population, but is celebrated for its annual fairs, at which two continents[2] exchange their products, when thousands of booths cover the peninsula between the two rivers, and vessels of all sizes moored along the river banks for miles together are converted for the time being into shops and magazines. **Kazan**, at the point where the Volga turns southwards,[3] is an important centre of trade.

In western Russia the chief town is **WARSAW** (400), the former capital of Poland, and still the seat of a Polish university. With its suburb of **Praga**, it commands the principal passage of the Vistula, and hence is strongly fortified. **Vilna**, on a tributary of the Niemen and the high road from Warsaw to St. Petersburg, is the chief town belonging to the old kingdom of Lithuania. **Dorpat**, west of Lake Peipus, is chiefly noteworthy as the seat of the easternmost German university, and hence the most advanced outpost of German civilisation.

In the south-west and south the chief inland towns are **KISHINEF**. the centre of the fertile government of Bessarabia; **KIEF**, on the Dnieper, and **KHARKOF**, between the Dnieper and the Don—all towns belonging to the Region of Black Earth.

II. ROUMANIA, a kingdom to the south-west of Russia, formed in 1861 out of the two principalities of **Moldavia** (in the north) and **Wallachia** (in the south-west), to which the plateau of the **Dobruja** on the right bank of the Danube was added in 1878. Physically it is for the most part a continuation of the Russian plain, but the northern portion is higher, and must rather be regarded as a continuation of the plateau of Galicia and Bukovina. The country is drained by numerous tributaries of the **Danube**, the principal being the **Sereth** and **Pruth**, the latter of which divides Roumania from Russia. The state is essentially agricultural, and produces enormous quantities of maize for export. The language is one of the corruptions of the Latin. The inhabitants are adherents of the Greek Church. The density of the population is little over 100 to the square mile.

---

[1] The use of brick is extending. [2] Asia and Europe. [3] See p. 61 (2) (*b*).

The capital is **BUKAREST** (220), in the centre of the plain of Wallachia; and the other important towns are **Jassy**, in the centre of the plateau of Moldavia, and **Galatz**, the chief port near the mouth of the Danube, situated at the point where that river turns to the east.[1]

SCANDINAVIA.

Approximate latitudes: Hammerfest, 70½°; Throndhjem, 63½°; (south point of Shetland Islands), Christiania, Upsala (St. Petersburg), 60°; (Copenhagen), Malmö (Moscow), 56°.
Approximate longitudes: west of Norway, 5°; river Torneå, 24° E.

Norway and Sweden, the two kingdoms which compose this peninsula (the largest in Europe), are the most thinly populated countries of the Continent, the former having a population of only sixteen, the latter twenty-six to the square mile.

This small density is explained by the position and the **physical features.** A large part of the peninsula lies within the Arctic Circle, and though the western shores are under peculiarly favourable influences as regards climate,[2] the benefit of these influences is felt only to a slight distance inland, owing to the nature of the surface. **The greater part of the peninsula consists of a plateau** of hard rocks, which sinks abruptly down on the west or Norwegian side, and more gradually in a series of terraces on the east or Swedish side. The plateau increases in elevation from north to south,[3] and its surface is everywhere too high for cultivation. It is not even covered to any great extent with pastures, but chiefly with mosses and lichens, where it does not rise above the limit of perpetual snow. The aspect is extremely dreary. It is for the most part that of a vast elevated plain,[4] broken up into tabular masses by deep but narrow gorges, and dotted here and there with mountains, which appear like large rocks scattered over the surface, and nowhere form a mountain chain. The highest mountains rise from the highest part of the plateau, where the **Galdhöppigen** rise to the height of 8,400 feet. In this region also are the most extensive glaciers, one, that of **Jostedalsbrae**, covering an area of nearly 400 square miles.

---

[1] See Introd. p. 61 (2) (*b*).

[2] See Introd. p. 51, and p. 157.

[3] From about 1,000 to upwards of 3,000 feet.

[4] Called by the people themselves the *fjeld* (pronounced *fyel*).

On the west side the gorges that break up the plateau **advance** into the sea, and form the numerous steep-sided rocky **fiords**, which are so characteristic of the Norwegian coast. In front of the fiords is an almost continuous breastwork of rocky islands (so called **skerries**), the principal group of which is that of the **Lofoten Islands**, within the Arctic Circle. The Swedish coast, on the other hand, is almost everywhere flat, and so also are the numerous small islands by which it is bordered.

The **lowlands** of the peninsula lie chiefly on the gentler eastern slope of the plateau, and hence occupy a much smaller area in Norway than in Sweden. In the former country they constitute only about one-hundredth part of the whole surface (on the Skager Rak), while in the latter they occupy one-third. The chief **rivers** belong to the same slope, and almost all of them expand at intervals into long lakes with cataracts at their lower end, and hence, though they can be used for floating timber, are scarcely anywhere navigable. Lakes **Wener** and **Wetter**, the largest lakes in Europe after those of North Russia, occupy the lowland peninsula in the south of Sweden.

About three-fourths of the people of Sweden are dependent on **agriculture** and the rearing of live-stock, and in that country the export of grain (chiefly oats) exceeds the import. In Norway the rearing of live-stock is of more importance than the tillage of the ground. In the neighbourhood of the plateau the cattle are driven up in the summer to the highland pastures, while in winter they are poorly fed under cover. Besides agriculture the chief occupations of the people are, in Sweden, **wood-cutting and mining**; in Norway, wood-cutting, fishing, and shipping. Almost one-half of the **timber** of European commerce is derived from the Scandinavian peninsula. The forests[1] are chiefly **pine and fir**, and the wood is peculiarly hard and durable.[2]

The great majority of the **inhabitants** belong to a **Teutonic stock**. (See DENMARK, p. 231.) The northern half of both Norway and Sweden is chiefly inhabited in the interior[3] by a separate race, known as the **Lapps** or Finns, who number at most 50,000 (probably much less). Some of these live by fishing (**Sea Lapps**);

---

[1] Two-fifths of the surface of Sweden is estimated to be covered with forests.

[2] Because the short summers make the annual rings of the wood very close.

[3] Almost the only settled population in the interior of northern Sweden is that round the huge ironstone mountain of Gellivara—the ore from which is conveyed to the Luleå river by means of a railway, the most northerly in the world.

while others (the **Reindeer Lapps**) travel about with herds of reindeer, which feed on the mosses that cover the plateau, and which supply them with food, drink, and clothing, and in winter drag their sledges with great swiftness across the snow.

Both Norway and Sweden now acknowledge the rule of one king, but they have separate legislatures, and in every other respect a separate government.

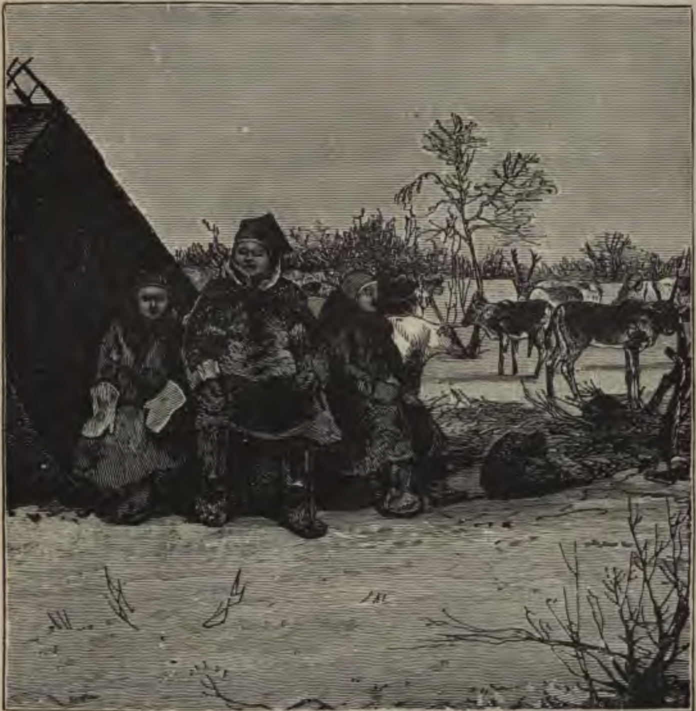


FIG. 37.—AN ENCAMPMENT OF LAPPS WITH REINDEER.

I. Sweden.—The more populous part of Sweden lies to the south of 62° north, and is divided into the territories of **Svealand**[1] in the north and **Gottland** in the south (the peninsula between the Kattegat and the Baltic).

In the former area are the principal mines of Sweden. In the valleys of the Osterdal and Westerdal, the district known as **Dalarne**—that is, the valleys—are the principal copper mines, and nearer the coast, a little to the north of the sixtieth parallel, are the celebrated ironworks of Dannemora, where the iron is not obtained by means of underground shafts, but is quarried in the open air.[1] In this area also lies the capital of Sweden, **STOCKHOLM** (205), beautifully situated at the lower end of Lake Mälar, which is connected by a canal with an inlet on the south, and thus placed in communication with a series of canals with locks connecting Lakes Wener and Wetter with the Baltic and the Kattegat. North-north-west of Stockholm, **Upsala**, the seat of a famous university, at which Linnæus was professor.

---

[1] That is, the land of the Swedes proper.

The peninsula of Gottland is the principal agricultural region of Sweden. Here, on the Kattegat, at the mouth of the Göta-elf,[2] **Göteborg** (Gothenburg), the second largest town in Sweden, and the most important of its industrial towns (cotton spinneries, &c.; best known in this country through its matches). Opposite the coast of Gottland is an island of the same name, with **Wisby** on its west coast, now an insignificant town, but with extensive walls and various ruins, to call to mind the period when it was one of the chief towns of the Hansa.[3] Near the southern end of the peninsula, **Malmö**, the chief place of transit to Denmark and Germany.

II. Norway.—The chief area for the production of timber and corn crops in Norway is a small triangle in the north of the Skager Rak.

In this triangle lies **Christiania**, the capital of Norway, at the head of the fiord of the same name, the only town in Norway with more than 50,000 inhabitants. All the other chief towns are on the fiords of the west coast, and depend mainly on the fisheries. The principal market for fish is **Bergen**, the second largest town in Norway, on a fiord near the south; and the coasts between this inlet and the southern point of Norway (Cape Lindesnaes) are the principal scene of the herring fishery. Cod, on the other hand, are principally caught in the channel between the Lofoten Islands and the mainland, where they arrive in countless shoals about the beginning of February. Here, while the long Arctic night still continues, from 15,000 to 20,000 fishermen assemble every year with about 4,000 boats, and the fishery goes on till April. The cod are split open and dried on long lines of wooden framework (*stockfish*), or salted and dried on the cliffs behind the fishermen's huts (*klippfish*),[4] and the liver is preserved for the making of cod-liver oil. **Throndhjem** lies farther north than Bergen, on a comparatively broad fiord, affording some space for agriculture on its shores, and from it an easy road (now a railway) leads across the fjeld into the south-east of Sweden. **Tromsö** and **Hammerfest** are small towns still farther north, the latter in a latitude at which the winter night and summer day last for three and a half months. On the neighbouring cliffs eider-down is collected from the nests of the eider ducks.

---

[1] Comp. the Erzberg, p. 216. [2] Elf, Swedish = river. [3] See p. 196 *n*. 2.

[4] That is, 'cliff fish.' The cod-fish of Norway are chiefly exported to the Roman Catholic countries on the Mediterranean.

DENMARK.

Denmark, which was long associated in history with Scandinavia, is a country of very different aspect. Both mainland and islands, with the exception of the more distant rocky island of Bornholm, are essentially a part of the great European plain. The mainland is separated from Sweden by the Kattegat, which communicates with the Baltic by means of three narrow straits—the **Sound**, between Sweden and Seeland; the **Great Belt,** between Seeland and Fyen;[1] and the **Little Belt,** between Fyen and **Jutland.** Of these, the Great Belt is the only one deep enough to be used by war vessels; but merchant vessels come and go by way of the Sound, which is not only the shortest route, but one in which sailing vessels are favoured in either direction by the prevailing westerly winds.

The mainland portion of the country, forming the peninsula of **Jutland** (with which a detached portion on the north, now completely separated by the **Liimfiord,** was connected in the west till 1825), presents the same contrast on the east and west as the more southerly portion of the same peninsula now belonging to Prussia. The west coasts are bordered by a chain of downs or sand-hills inaccessible to shipping, while the east coast is richer in harbours. On the west a barren sandy soil extends more than half-way inland, and thus reduces considerably the density of the population, but the eastern part of the peninsula and almost all the islands are fertile.

The **inhabitants** are mainly agriculturists, and many of the peasants own the land which they till. Relatively to population, more corn is grown and more cattle are reared in Denmark than in any other country in Europe, and different kinds of grain form by far the most important export.

Till the beginning of the sixteenth century Denmark was at the head of the Scandinavian countries, having both Norway and Sweden subject to its rule; but first Sweden acquired its independence (1526), and in the present century Norway was detached. Still, however, the inhabitants of these three kingdoms are much alike in language, religion, occupations, and customs. Norwegian is only a dialect of Danish, and Swedish is a language very closely allied. The inhabitants of all three countries are Lutheran

---

[1] Often called *Funen* in this country, that name being a corruption of the German one. The Danish name (in the text) means 'fine,' or 'beautiful.'

Protestants in religion, and among the Danes, as among the Swedes and Norwegians, education is very generally diffused and highly advanced. There is an excellent university at Copenhagen.

Towns.—**COPENHAGEN** (235), the capital, chiefly on the island of Seeland, partly on the small island of Amager, arose on the best natural harbour on the Sound. Besides Copenhagen there are only two towns with a population of more than 20,000, one of which is **Frederiksborg**, the summer residence of the royal family, a short distance from Copenhagen. The other is **Odense**, on the east side of the island of Fyen. The towns in Jutland are all small places mostly at the head of the inlets, here called fiords, though unlike the steep-sided rocky fiords of Norway.

Distant Possessions. — **The Faroe[1] Islands**, north-west of Scotland, in lat. 62° N., are rocky islands, inhabited by a small number of people employed in sheep-rearing and fishing.

Iceland, still farther to the north-west, an island bisected by the 65th parallel of north latitude. It is nearly half as large as Great Britain, but, having an elevated surface, consisting chiefly of volcanic rock covered with mosses and lichens, and a summer too cold and damp for the cultivation of grain, is inhabited by only about 70,000 people, who derive a scanty subsistence from the rearing of sheep and horses, and from fishing. They are the descendants of old Norwegian farmers of noble birth, and still speak the old Norwegian language, the mother language of Danish and Norwegian, and retain to the present day the love of learning inherited from their ancestors, so that education is as general among the Icelanders as among the people of Sweden, Norway, and Denmark. The island is chiefly celebrated for its active volcanoes (**Hecla**, &c.), geysers,[2] and hot springs. Chief town, **Reikjavik**, in the south-west.

IBERIAN PENINSULA.

Approximate latitudes: middle of Pyrenees (Balkan Mountains), 43°; Point Tarifa, 36° N.
Approximate longitudes: 9° W. to 3° E.

The Iberian Peninsula,[3] composed of Spain and Portugal, is the most westerly of the Mediterranean peninsulas, and that which contains the greatest proportion of land in the south. Nearly half of the peninsula lies to the south of the parallel of 40°, while only the southernmost of the minor peninsulas of Italy and the Greek portion of the Balkan Peninsula extend south of that line.

---

[1] In Danish Fär Oër, that is, 'sheep islands.'

[2] See p. 36.

[3] So called from the Iberi, who formed a large proportion of its ancient inhabitants.

The **coast** is little varied in outline, except in the north-west, where the **rias** or fiord-like indentations, similar to the lochs of Scotland and Ireland and the gulfs of Brittany, are, like these, washed by high tides.[1]

The **surface** of the peninsula is one of the most elevated in Europe. The greater part consists of a large plateau, upwards of 2,500 feet in height, higher in the north than in the south, crossed from east to west by ranges of mountains (sierras). The eastern edge of this plateau is a semicircle, which descends in the north-east more or less abruptly to the valley of the Ebro, and farther south advances closer to the sea. In the south its boundary is marked by the **Sierra Morena**, which looks down on the valley of the Guadalquivir; while in the west the plateau is broken in upon by the narrow plains and terraced uplands of Portugal bordering the lower course of the Iberian rivers. In the north-east this plateau is connected with the **Pyrenees**, a lofty chain, with peaks rising about its middle (the **Maladetta** group) to upwards of 11,000 feet, and crossed by few passes as low as those of the Alps, so that the chain forms an admirable defensive frontier. The principal roads, and at present the only railways between France and Spain, are round its extremities. The long spurs from this range to the south greatly restrict the extent of the low grounds in the triangular basin of the rapid Ebro between the Pyrenees and the central plateau.

Another lofty and rugged range is less markedly connected with the central plateau in the south-east. The **Sierra Nevada**,[2] the snowy summits of which[3] are almost always visible in the clear air of Spain overlooking the sub-tropical gardens of the plain of Granada, runs north-eastwards towards the plateau without meeting it, the water-parting in this district being formed merely by high ground dotted with hills. On the south the Sierra Nevada is flanked by a long series of coast ranges of mountains, and between these and the plateau extends the only considerable tract of lowlands in the peninsula, the broad valley of the Guadalquivir.

---

[1] The Mediterranean coasts are almost without tides (see p. 45).

[2] Spanish = Snowy Sierra.

[3] The highest peak, *Mulahacen*, is even higher than the loftiest summit of the Pyrenees.

On the plateau the water-parting between east and west runs generally near the eastern edge, so that most of the chief **rivers** have a long course westwards towards the Atlantic, while their basins are limited in breadth by the mountain ranges that cross the plateau. These rivers are—the **Douro**, between the Cantabrian Mountains (a continuation of the Pyrenees along the north coast) and the series of sierras which wind from Lisbon to the south-west frontier of Aragon,[1] forming in its eastern section the boundary between the old provinces of Leon and Estremadura, Old and New Castile; the **Tagus**, between this series of sierras and that of which the Sierra Toledo is the principal section; and the **Guadiana**,[2] between the latter and the Sierra Morena. None of the table-land rivers is of great importance for navigation, chiefly because they all have rapids caused by rocky shallows in their lower course where they have to pierce their way through mountain barriers. Hence they do not serve as a means of union for Spain and Portugal. In this respect they agree with the **Ebro**, but contrast with the **Guadalquivir**, which, having throughout a gentle flow, has been made navigable by dredging for large vessels to Seville, and can be ascended by boats far into the interior.

The rocks of which the surface of Spain is composed are, like those of Britain, very varied in geological date; and to this circumstance it probably owes its **extraordinary wealth in minerals**, exceeding that of most, if not of all other countries of Europe, though this wealth is far from being fully utilised.

The minerals are most abundant on and near the north and south boundaries of the plateau. In the north the Basque Provinces (in the south-east angle of the Bay of Biscay) are remarkably rich in iron, and coal is now known to exist in many districts, the largest field being in the Asturias. In the south are found the enormous deposits of copper at Rio Tinto, for which Huelva, in the south-west, is the place of export; farther east the lead ores of Linares, and within the plateau the quicksilver mines of Almaden. Sulphur and salt are also abundant.

The **climate**[3] is on the whole the driest in Europe. The edges of the plateau condense the moisture from the surrounding seas before it reaches the interior, which is hence to a large extent an arid steppe without trees, and fitted at most for sheep pastures. Only the north and north-west are abundantly supplied with rain, and hence have forests and agricultural products similar to those of Central Europe. On the other hand, the upland terraces and lowlands surrounding the plateau on the west, south, and east, are rich in evergreens (the **olive** and the **cork-oak**), in **wine**, and **southern fruits**, the cultivation of which, especially in the south, is almost wholly dependent on irrigation. The oases thus dotted here and there over vast barren expanses give to many parts of the peninsula an African aspect, on which account it is frequently described as **Africa in Europe.** The most unhealthy part of the peninsula is the marshy district on both banks of the Lower Guadalquivir. In almost all parts the principal grain is **wheat.**

---

[1] The chief member of this series of sierras is the *Sierra de Guadarrama.*

[2] The first part of the names Guadiana and Guadalquivir (as well as of other rivers in Spain) is derived from the Arabic *wadi*, a river: see below, p. 235.

[3] Regarding the climate and vegetation of the Mediterranean countries generally see Europe, pp. 155-6.

For six centuries the Iberian Peninsula was subject to the dominion of Rome, and was then **thoroughly Romanised**, so that notwithstanding all the subsequent changes the **language** has remained essentially a daughter of the Latin. At the break-up of the Roman Empire (fifth century A.D.) Spain was overrun by the Teutonic tribes of the **Western Goths** (Visigoths), who settled among, but did not displace, the old Romanised inhabitants. A different sort of invasion took place early in the eighth century, when the Mohammedan **Arabs** or **Moors**[1] crossing over from Africa soon made themselves masters of most of the peninsula. Though gradually driven backwards they retained the southern provinces till the close of the fifteenth century. For a great part of this period these Moorish provinces were the home of the highest civilisation in Europe, and many beautiful buildings, adorned with the peculiar kind of ornamentation known as arabesques,[2] have survived as witnesses of this extinct civilisation; and the fine irrigation works of the south are a still more important relic of Moorish dominion. The gradual wresting of the soil of Spain out of Moorish hands took place from different centres, whence arose several independent states,[3] which were only in course of centuries merged in one. The final expulsion took place just after all the provinces of the present Spain except those in Moorish hands had been brought under one rule. Portugal, separated from Spain by a belt of inhospitable thinly populated country, has remained independent except for a period of sixty years (1580 to 1640). Both countries were at the height of their power at the time of the discovery of America, and their maritime situation encouraged them to undertake marine enterprises, which resulted in their making settlements and establishing their dominion in large areas of the newly discovered lands across the Atlantic, as well as in the East Indies and on the route thither round Africa. Of these only a small proportion remain connected with the mother countries.[1] In both countries the **government** is now a limited monarchy.

---

[1] Really Arabs, but generally known as Moors because they came over from Morocco.

[2] The Mohammedan religion forbids the imitation of living things, whether animals or plants, and hence arose a style of ornamentation called arabesque after the Arabs, in which gracefully curved lines are the prevailing feature.

[3] The names of which still survive in those of the old provinces of Spain, but these old provinces have now given place to others of smaller and more equal size.

I. **PORTUGAL**, a country little more than one-third of the size of Great Britain, well adapted by its situation for maritime activity, but which shows scarcely a vestige of the enterprise which it once displayed by sea. Almost all the trade is in the hands of England, whence are derived most of the manufactured goods used in the country, which exchanges for them chiefly **wine** and **cork** (the bark of the cork-oak). About half of the surface is unproductive (yielding not even timber), the productive portion being confined to the vicinity of the coast and the banks of the rivers. The only mineral product is salt. There are only two important towns in the country, both seaports.

PORTO or **OPORTO**, at the mouth of the Douro, is the place of export of the wine to which it gives name (*port*) which is grown on the banks of the river. **LISBON** (200), at the mouth of the Tagus, the capital of the country, though like Oporto an ancient town, has quite a modern appearance, having been mostly rebuilt after its destruction by the tremendous earthquake of 1755. The small town of **Coimbra**, on the Mondego river, between the Douro and the Tagus, is the seat of a university.

II. **SPAIN**, a country more than twice as large as Great Britain, but with not much more than half the population. Only round the coast does the population exceed 100 to the square mile, and more than half the plateau (in the east and south) has a density of less than thirty to the square mile.

1. **Catalonia**,[2] in the north-east, has a soil not naturally fertile, but the inhabitants, the most energetic in Spain, have cultivated it with great care and have developed cotton and other manufacturing industries on a great scale.

---

[1] See p. 256. [2] The names following the numbers are those of the old provinces.

On the coast **BARCELONA** (250), a town which has grown up round a rock that rises boldly above the richest plain on this part of the coast. It is the principal seaport as well as the principal seat of manufactures in Spain, and the second town in population.

In the north of this province, among the Pyrenees, is the small independent republic of **Andorra**, less than 200 square miles in extent.

2. **Valencia and Murcia**, the next maritime provinces to the south, are characterised by numerous short rivers, on the banks of which are still to be seen some of the finest examples of the old Moorish irrigation works; in the so-called **huertas**,[1] in which every field is surrounded by small canals.

The province of Valencia is the chief silkworm-rearing province in Spain; and the city of **VALENCIA**, occupying a delightful situation on the delta of the Guadalaviar is the chief seat of the Spanish silk industry. It is an old Roman town, and a little to the north the site of another ancient seat of commerce, *Saguntum*, is marked by the village of Murviedro.[2] In the south of the province, **Elche**, a celebrated oasis of date-palms; on the neighbouring coast the fine seaport of **Alicante**, from which are sent out the products of the rich plain of Murcia, as well as the esparto grass which covers a large part of the maritime strip. **Cartagena**, on the coast of the latter province, owes its foundation[3] to a fine bay which admirably adapts it to serve as a naval station. It is strong in its situation, and strongly fortified, and is now also a thriving commercial seaport.

3. **Andalusia** is made up of the lowlands forming the valley of the Guadalquivir and the highlands in the south, which once formed the kingdom of Granada.

On the steep, rocky coast of the latter ancient kingdom are two seaports of some consequence, on account of their trade in southern fruits, &c.—**Almeria and Malaga**, the latter on a small strip of flat land where the mountains retire a little from the coast. Near the south point of Spain, on the Bay of Algeciras, **Gibraltar**, an almost impregnable fortress, commanding the entrance to the Mediterranean, held by the British since 1704. But it is on the plain of Andalusia that the chief cities of the province lie. It is on this sunny plain, where sugar-cane, cotton, and the cactus known as the prickly pear are among the objects of cultivation, and the agave, castor-oil plant, and olive even run wild, that we meet with the Spanish cities which still retain something of the splendour which they had during the time of the Moorish occupancy. **SEVILLE**, on the Guadalquivir, an active seaport as well as a rising seat of industry; **Cordoba**,[4] higher up on the same river, once a seat of Moorish dominion, but now greatly declined, partly in consequence of the fact that the Guadalquivir is no longer navigable so high up for vessels of large size; **Granada**, on a small plain near the head-waters of the Jenil[1] (trib. Guadalquivir), the last seat of Moorish dominion (taken by the Spaniards in 1492), and celebrated for its **Alhambra**, the old palace of the Moorish kings. The irrigated plain which surrounds it, here called by the Arabic name of the *Vega*, rivals in fertility and beauty the huertas of Valencia and Murcia. On a small island off the coast, a little to the south of the mouth of the Guadalquivir, stands the fortified seaport of **Cadiz**, founded by Phœnicians about 1100 B.C., the place of export of the wine which takes its name of sherry from the neighbouring town of **Jerez**.[1]

---

[1] Spanish = 'gardens.'

[2] A corruption of Lat. *muri veteres* = 'old walls.'

[3] By the Carthaginians. It is the *Carthago Nova* of the Romans.

[4] Often spelt Cordova, the Spanish *b* between two vowels being pronounced very like a *v*.

4. The Northern Provinces of Spain.—Galicia, the Asturias, and Biscay, with a strip of Old Castile; a region covered with forest-clad mountains, noteworthy in the history of Spain as having always been the last refuge from invaders.

The most easterly province, Biscay, takes its name from the **Basques**, who are the last remnant of a population whose language has no recognisable affinities with any other known speech. The name Asturias, from Basque roots meaning 'rock waters,' serves at once to indicate the character of the land, and to reveal the fact that the Basques at one time extended farther west than their present seats.[2] All the places of importance are on the coast. **Ferrol**, on one of the rias of the north-west, is the principal Spanish naval station. **Santander** and **Bilbao**, on the north coast, two busy seaports, the latter exporting a great deal of iron ore from the neighbouring mines.

5. The Provinces of the Castiles, Old and New, the name of which is a memorial of the numerous castles or strongholds erected by the Christians to secure their successive conquests from the Moors, embrace the most desolate portions of the Spanish table-land, these occupying the east (round the head waters of the Tagus and Jucar)[1] and south (La Mancha). The somewhat more favourable tracts to the west produce a number of aromatic herbs which afford a suitable pasture for the migrating sheep (merinos),[3] which are kept in summer on the table-lands of New Castile and Leon, while in winter they are driven down to the more sheltered valleys of Estremadura and Andalusia.

MADRID, the highest capital in Europe (2,200 feet), and the dreariest in situation, owes its elevation to the rank of capital (by Charles V. in the first half of the sixteenth century) solely to its central position; and **Valladolid**, in Old Castile, an earlier capital of Spain, owes its importance to a similar cause, being the centre of one of the minor tablelands of the peninsula. **Toledo**, forty miles south of Madrid, occupies a strong situation on a rock overhanging the Tagus, and was one of the older capitals, but is now decayed; it has long been celebrated, as it still is, for its swords.

---

[1] Formerly spelt Xenil, Xerez, &c., *j* being now used in Spanish for the sound once represented by *x*. This sound is that of a strongly aspirated *h*.

[2] See p. 159.

[3] The stock from which this breed of sheep is derived is said to have been intro*duced from North Africa* in the fourteenth century. See also p. 89.

6. **Aragon,** on the north-east of the Spanish tableland, is a thinly-populated province, in which the inhabitants display little of the energy shown by their neighbours of Catalonia in overcoming the defects of the soil.

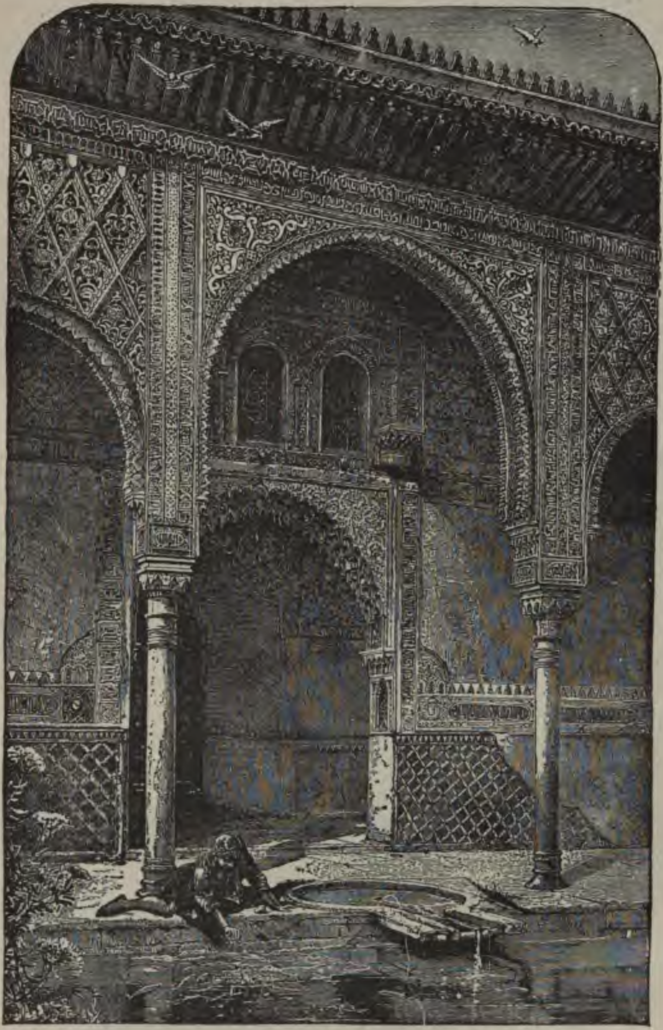


FIG. 38.—THE ALHAMBRA. (By the kind permission of Messrs. Hachette.)

Its only large town, **Zaragoza**, on the Ebro, has always been of great military importance, since it stands at the point whence the easiest route leads up to the central plateau (by the valley of the Jalon,[1] a route now followed by a railway).

7. The Balearic Islands, to the east of the Gulf of Valencia, are all more or less mountainous.

The principal town, **Mahon** (for part of last century in the possession of the British), stands in Minorca, the least mountainous of the three larger islands.

ITALY.

Approximate latitudes: (St. Etienne) Milan, Venice, 45½° N.; (north of Portugal) Rome 42°; (Murcia) Palermo (Athens), 38°.
Approximate longitudes: 7°–18½° E.

The mainland of Italy, a country one-fourth larger than Great Britain, is composed of a long peninsula almost filled by the Apennine Mountains, and a plain on the north, bounded by the Alps, and drained chiefly by the Po. Besides smaller islands, the kingdom includes also the two large mountainous islands of Sicily and Sardinia.

Almost everywhere the **Alps** descend rather abruptly to the north plain. Immediately at their base, and enjoying in an eminent degree the shelter afforded by them from cold north winds,[2] lie four beautiful lakes (**Maggiore, Como, Iseo, Garda**), amidst vegetation which will not flourish in the plain farther south. On the opposite side of the plain the **Apennines** descend inwards more gradually in a series of terraces, and the straight road connecting the towns of Rimini, Bologna, Modena, Parma, and Piacenza, the road anciently called the **Via Æmilia**, and now giving name to the Emilian provinces, marks very well the limit between highlands and lowlands. At Rimini this road, now accompanied by a railway, touches the coast, which it henceforth follows as far as the peninsula of **Gargano**, thus showing how close the Apennines advance to the sea in this part of Italy. It is on this side, a little to the north-west of the peninsula just named, that these mountains reach their highest elevation (a little under 10,000 feet) in the rugged province of the **Abruzzi**.

The principal plains of the peninsula are—(1) that of the Arno, in the north of Tuscany; (2) that of Campania,[3] round Naples; and (3) the larger but less fertile lowlands of Apulia, in the south-east. All of them are small by comparison with the great plain of northern or so-called Upper Italy. Unhealthy marshes occupy many parts of the coast, especially in the west and south.

---

[1] See p. 238 n. 1.

[2] See Introd. p. 52.

[3] Not to be confounded with the Campagna round Rome.

The only lake belonging to the Italian Plains is the **Val di Comacchio**, at the mouth of the Po, south of the delta, a shallow lagoon cut off from the Adriatic by a low and narrow spit of land. It is valuable for its eel-fisheries and salt-pans. Of the **lakes of the Apennines** (**Trasimeno, Bolsena, Bracciano**), the two latter occupy the craters of extinct volcanoes.

Though mountains and highlands occupy so large a part of the area and have been to a large extent stripped of the forests that once covered them, the **productive surface** of the country is relatively large, hill pastures being very extensive. Only about two-fifths of the surface, however, is suitable for agriculture, and Italy is among those countries which have to import grain; while its dearth of coal and iron prevents it from taking a hign place in manufacturing industry, and necessitates a large import of manufactured goods. The products on which it chiefly depends for **export** are **wine, oil** (from the olive), and above all **raw silk.**

Among **minerals, iron,** though not abundant, is found of excellent quality at various places (island of Elba, &c.) A fine kind of **marble** is quarried at Carrara, among the Apuan Hills, in North Italy; but the **sulphur** of Sicily and Southern Italy makes up at least half the value of the mineral produce of the kingdom.

Though apparently formed by nature to constitute a single state, few countries have had a greater variety of settlers and dominions within their boundaries than Italy. In ancient times, numerous flourishing **Greek Colonies** studded the shores of the southern half of the mainland, and both **Greeks** and **Carthaginians** formed settlements in Sicily, while **Kelts,** breaking in through the passes across the Western Alps,[1] occupied the northern plains. Ultimately, however, the whole country was subdued by the strong hand of Rome, and was kept under one rule for more than 500 years. But on the downfall of Rome, in the fifth century A.D., Italy became a prey to numerous foreign invaders, and once more broke up into a number of different states. A German tribe, the **Lombards**[2] (**Longobardi**), settled in the northern plains, and others advanced farther south. At a later date **Arabs** (Saracens) and **Normans** settled in Sicily and southern

---

[1] See p. 204.

[2] Whence the name Lombardy.

Italy, and Germany, France, and Spain, all in turn invaded Italy and seized on parts of it, which they retained for a longer or shorter time. Throughout the greater part of the Middle Ages, and for centuries after, the country was broken up into a large number of independent cities and small states, yet this is one of the most brilliant periods of Italian history. The favourable situation of Italy in the middle of the Mediterranean gave this country the command of the trade between the east and west, and the wealthy trading republics of Genoa and Venice, for example, had settlements even on the Black Sea. Their trade and their glory declined, however, when by the discovery of the New World Italy came to be no longer in the centre of the highways of commerce.[1] The political unity of Italy was completely effected only in 1870, when the last remnants of the States of the Church were annexed to a kingdom, the original nucleus of which was the kingdom of Sardinia, made up of the island of that name together with the north-western portion of the mainland. The **government** is a limited monarchy.

The **population**, upwards of 250 to the square mile, is one of the densest in Europe, and there is a considerable annual emigration, principally to the republics of South America. The Italian **language** is the least modified of all the descendants of the Latin. The **religion** is Roman Catholic. Elementary **education** is rapidly extending, but great numbers of the inhabitants, especially in the south, are still unable to read and write.

Italy is divided into provinces, the average size of which is about the same as that of a French department, but some of the names of the older divisions (Venetia, Lombardy, &c.), still survive as those of groups of provinces called territorial compartments

Towns and Districts.—1. The Northern Plains.—Besides the Po and its tributaries, these plains are drained by numerous other rivers, the chief of which (Adige, Brenta, &c.), enter the Adriatic to the north of the Po. Numerous irrigation and some navigable canals are led from these streams, and the region is thus one of the best watered and most productive in Europe. The abundant sediment brought down from the Alps by the rivers is constantly extending the land seawards, particularly in the region of the Po delta, where Adria, in ancient times a coast town from which the Adriatic obtained its name, is now more than twenty miles inland. Though sharing in the benefit of a warm climate enjoyed everywhere in the Mediterranean region,[1] this part of Italy has summers too moist and winters too cold for the cultivation of the olive and the members of the orange tribe. The summers are warm enough, however, for the growth of **maize** and **wine**, and for the rearing of **silkworms**; the vines being often hung in festoons between mulberry trees, on the leaves of which the silkworms feed. The silk thus produced furnishes the material for the making of **silks** and **velvets**—the chief manufacturing industry, not only of these provinces, but of the whole kingdom. The pastures are rich, and are the mainstay of another leading industry of the region, the making of **cheese**. The district round Lodi, where the so-called Parmesan[2] cheese, is made, is famous for its six crops of grass in the year. **Rice** is grown on the marshy depressions on the banks of the Po. Large towns are numerous.

---

[1] Comp. British Isles, pp. 164–5.

On the Po, before it enters on the plains, stands **TURIN** (230), capital of the former kingdom of Sardinia, afterwards the first capital of the kingdom of Italy; situated at the point towards which three passes across the Alps converge, and now on the railway which pierces the Alps at the Mont Cenis tunnel. Lower down on the Po, **Piacenza**, at the point where the banks of the river begin to be marshy, and hence at the lowest point at which the river could be conveniently bridged, so that it became not only the terminus of the Æmilian road, but also the meeting-place of the roads from Italy and Switzerland. Still lower down on the Po is **Cremona**, once noted for its violins. **MILAN** (300), in the centre of the rich plain between the Ticino and the Adda, occupies a similar situation to Turin, at the focus of the chief passes leading from the north across the Alps, now on the railway which pierces these mountains by the St. Gothard tunnel, and hence an important centre of trade between Italy and Central Europe. In the Middle Ages the seat of a grand-duke, it is now of importance chiefly as the town in which manufacturing industry is most highly developed in Italy. Its marble cathedral is also celebrated.

On the east and west of Lombardy, lines of defence are created by broad rivers with marshy banks. On the west the line is that of the Ticino, near the mouth of which is the town of **Pavia**, which has in consequence been a frequent scene of battle. On the east the lines referred to are those of the Adige and the Mincio, and on these rivers stand the fortresses of the famous **Quadrilateral** (Mantua, Verona,[3] Peschiera, and Legnago).

On the coast stands **VENICE**, built on a hundred islands[4] behind a line of low sandbanks (*lidi*), due to the joint action of rivers and sea-currents, but now strengthened by walls, while the openings between them (narrow enough to be stopped by the sinking of a single vessel) are protected by forts. In this easily defended situation Venice was founded in the fifth century A.D. by refugees from neighbouring Roman towns sacked by the Huns, and through its admirable position for commerce (the valley of the Adige and the Brenner Pass serving as a communication between it and Central Europe), it soon became a thriving city, and ultimately for a time the centre of commerce in Italy. Art and luxury followed the attainment of wealth and power, and the beautiful buildings whose foundations rest on piles and are washed by the arms of the sea which in this remarkable town take the place of streets, are the admiration of all the cultivated peoples of the west. It is still a busy seaport, and has regained a little of its former prosperity since the opening of the Suez Canal. On the Brenta, **Padua**, the seat of a university long famous.

---

[1] See Europe, p. 155.

[2] Not made at Parma, as the name would imply.

[3] Verona defends the mouth of the valley leading down from the Brenner Pass (see p. 305).

[4] Now connected with the mainland by a railway bridge more than a mile in length.

Of the towns on the Æmilian road already mentioned, **Parma** and **Modena** are noted in history as the seats of independent dukes, whose territories were annexed to the kingdom of Italy only in 1860; **Bologna** is the seat of one of the oldest of European universities, once specially famous as a school of Roman law; **Ravenna**, though now an unimportant inland town, was the Venice of ancient times, a city built on islands, and hence on account of its strength made by Augustus a naval station, and during the time when the northern barbarians were overrunning Italy chosen as the seat of government by some of the later Roman emperors, and afterwards by the exarchs or governors of the Italian territory which remained under the rule of the emperors of the East.

2. **Middle Italy and the Riviera.**—The Riviera is the name given to that sheltered strip of coast, partly in France and partly in Italy (**San Remo**), where invalids from all parts of Europe come to enjoy the benefit of a mild climate amidst charming scenery and a sub-tropical vegetation. From the ancient inhabitants this strip of coast has the name of **Liguria**.

GENOA, the former rival of Venice, and now the chief seaport of Italy, built tier above tier in face of a fine bay, which lies at the mouth of the **Bochetta Pass**[1] across the Apennines, once the most important trade-route in this part of Italy, but now superseded by a railway. In recent times Genoa has prospered even more than Venice, from the fact that all the railways of the north converge here (the line piercing the Apennines in a tunnel situated a little to the east of the pass just mentioned).

In **Tuscany** are several cities formerly celebrated, if not still of great importance. Chief of these is **FLORENCE**,[2] on the Arno, in the midst of the Tuscan lowlands, which are broken up by ranges of hills

---

[1] See Introd. p. 61 (8) (*b*).

[2] The winter temperature of Florence is 5° Fahr higher than that of Bologna, only fifty miles distant but on the north side of the Apennines. (See p. 52.) Before the introduction of railways the pass of Pietra Mala or La Futa (3,000 ft.), on the road from Florence to Bologna, was one of the most frequented in the Apennines, but the railway between the two towns (less direct in its route) now ascends the valley of the Reno and crosses the Apennines farther to the west.

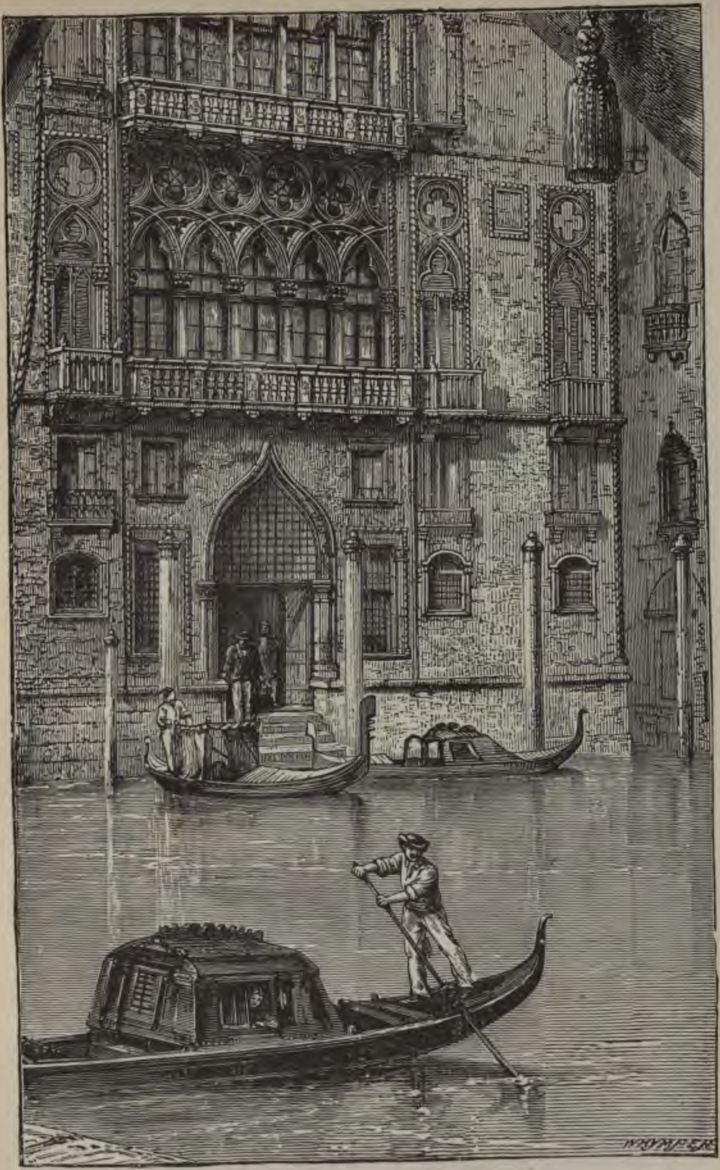


FIG. 39.—FRONT OF A VENETIAN PALACE, WITH GONDOLAS, OR VENETIAN BOATS, IN THE FOREGROUND.

into a number of small plains, each as carefully watered and as fertile as the plains of Lombardy, but enjoying under the shelter of the Apennines a much warmer climate, so that the olive gardens are the most celebrated in all Italy. A city of comparatively recent growth, it was during the fifteenth and sixteenth centuries one of the most powerful in Italy, and, being then a favourite home of artists, is famous for its art treasures. Straw-plaiting and silk manufactures are the principal industries at the present day. **Pisa**, near the mouth of the Arno, before the rise of Genoa and Florence a great seaport and powerful republic, is noteworthy on account of its university and of the old buildings, splendid relics of the Middle Ages, enclosed within its walls. It is now inaccessible to sea-going vessels in consequence of the silting up of the mouth of the river. To take its place as a seaport the Florentines constructed on the coast farther south the harbour of **Leghorn.**[1] Between Leghorn and Genoa is the fine natural harbour of **Spezia**, the chief naval station of Italy. Among the thinly populated and poorly watered provinces of South Tuscany, **Siena**, though no longer a populous town, is worthy of mention as having also been in former times the seat of a powerful republic.

In **Latium, Umbria, and the Marches**, which are nearly covered by the Apennines and its branches, there is only one town with more than 50,000 inhabitants. That town is **ROME** (275), on the Tiber, since 1870 the capital of the kingdom of Italy, in succession to Florence; in ancient times the capital of the Roman Empire, of which the ruins of the Forum, the Pantheon, and the Colosseum are symbols; afterwards the seat of the popes and as such the head of Western Christendom, which is still more conspicuously symbolised by the magnificent dome of St. Peter's on the right bank of the Tiber. Founded (it is said in the eighth century B.C.) on the last hills bordering the Tiber, at a point to which the river could be ascended by small ships,[2] it soon became the meeting-place of the chief roads across the Apennines, and hence grew in size and power. It is now the chief resort of artists, and is visited on account of its historical associations by people from all parts of the civilised world. The country round, the **Campagna**, in ancient times carefully cultivated, has fallen out of cultivation and is now a barren plain rendered almost uninhabitable by malaria. Still more pestiferous are the **Pontine Marshes**, in the extreme south of Latium, uninhabitable even in ancient times. On the east coast is the seaport of **Ancona**.

3. Lower Italy, comprising the wild region of the Abruzzi, the sheep pastures of Apulia in the south-east, the mountainous Calabria with its malarial coasts in the south-west, and in the west the fertile plain of Campania.

On the coast, on a beautiful bay fronting the small islands of **Ischia** and Procida, stands **NAPLES** (460), the most populous city in Italy with a considerable silk industry, till 1860 the capital of a kingdom which embraced the whole of Lower Italy and Sicily. Overlooking the same bay is **Mount Vesuvius**, the only active volcano on the mainland of Europe. Its first recorded eruption (A.D. 79) overwhelmed with its ashes the cities of **Herculaneum** and **Pompeii**, the disinterring of which in the present day has brought to light many Roman remains of the greatest interest. **Capua**, on the Volturno, in ancient times the chief town in Campania, has sunk into complete decay, chiefly in consequence of the swamps now existing on the banks of the river. On the coast of Apulia is **Brindisi**, in ancient times, under the name of *Brundusium*, the place of transit to Greece, and now again an important seaport as the terminus of the land-route (through the Alpine railways) to Alexandria and the East.

---

[1] Ital. *Livorno*.

[2] See Introd. p. 61 (1) (*b*), (3) and (4).

4. **Sicily and Sardinia.**—Though nearly equal in size, these islands present a great contrast in natural fertility and hence in populousness.

The former has considerable mountains, only in the north; most of its surface is covered with **wheatfields** and groves bearing **southern fruits.** Three towns in it have at least 100,000 inhabitants—**MESSINA**, on the straits of the same name (under which it is now proposed to pierce a tunnel); **CATANIA**, on a charming plain at the foot of Mount Etna, on the east coast, and the beautiful **PALERMO** (200), on the north coast. **Mount Etna** is an active volcano, rising with an exceedingly regular and gentle slope to about 11,000 feet in height. The anciently celebrated city of **Syracuse**, near the southern end of the east coast, is now only a gloomy and dirty town of no importance. The island altogether, though less than one-third of the size of Ireland, has a population more than half as great.

FIG. 40.—A STREET IN POMPEII: VESUVIUS IN THE DISTANCE.

Sardinia has only one plain of importance, stretching from north-west to south-east, between the **Bay of Oristano** and that of **Cagliari**, which latter takes its name from the chief town in the island. **Oranges** are an important product, and in the south-west are rich mines of silver-yielding **lead** and of **zinc**.

Midway between Sicily and the coast of Africa lie the rocky limestone islands of **Malta**, **Gozo**, and **Comino**, inhabited by a dense population speaking a corrupt mixture of Arabic and other languages. They have been held by the British since 1800.

The area of the whole group is about two-thirds of that of the island of Anglesey. On Malta is the strong fortress of **La Valetta**, which carries on a large trade with North Africa, and is an important coaling station.

THE BALKAN PENINSULA.

Approximate latitudes: (Naples) Constantinople, 41°; (Murcia, Palermo) Athens, 38°.
Approximate longitudes: west of Bosnia to the Bosporus, 16°–29° E.

This name is applied to the easternmost of the three Mediterranean peninsulas, lying between the Adriatic and Ionian Seas on the west and the Black Sea and the Ægean on the east; on the north we may assume as the boundary the lower Save and Danube, as far as the south point of the Dobruja, thus excluding Roumania.

The whole peninsula, along with the adjacent islands, may be described in general as a land of mountains, partly depressed below sea level, so that the higher parts on the margin have in some cases got cut off as islands separated by valleys and passes now submerged, and in other cases run out to sea as peninsulas between which the lower parts of former land valleys now form deep gulfs. A rise of the sea-bed to the extent of about 100 fathoms would bring almost all the smaller islands into connection with the mainland.

So closely are the mountains crowded together that communication between different plains and valleys is always somewhat difficult, and hence the main routes marked out by nature for intercourse have in this part of Europe a special degree of importance. Two great roads following such natural lines proceed from different points in the south to the heart of the peninsula, neither route rising at any part more than 2,500 feet above sea-level. One of these starts at Constantinople, in the south-east, and, traversing one of the largest plains of the peninsula, ascends the valley of the **Maritza**,[1] passes the important towns of Adrianople and Sofia, and after crossing the water-parting descends into the basin of the **Morava**, and from the town of Nish follows that valley till it approaches the Danube; the other, starting at Salo-

---

[1] The largest river in the peninsula except those on the northern frontier.

nica, in the north-west of the Ægean Sea, ascends the valley of the **Vardar** as far as lat. 42° N. (Üsküb), and after crossing a water-parting only about 1,700 feet in height descends into the valley of the **Bulgarian Morava,** by which it proceeds to Nish. There it joins the road from the south-east. The depressions followed by these roads, depressions along which railways are now in course of construction, mark off **the mountains of the peninsula** into **three groups**—a western, a north-eastern, and a south-eastern.

In the western group the mountains, where they form chains at all, trend for the most part more or less north and south. The principal range is that of the **Dinaric Alps,** a limestone chain having the same character and aspect as the Karst region,[1] backed by plateaux of a similar nature, extending from north-west to south-east along the frontier of Bosnia. Towards the south they merge in the irregular mountain groups of Montenegro,[2] where some of the summits rise to the height of 8,000 feet. Farther south the **Lake of Skodra** or **Scutari**[3] and the valley of the **Drin** form a depression between the mountains of Montenegro and the short range of the **Shar Dagh,** which, running north-east and south-west, attains as great an elevation as the former; and between this range and the lower range of the **Kara Dagh,** to the north-east, the road and railway from Salonica are continued northwards from Üsküb.

To the south of the Shar Dagh the general trend of the mountains becomes more or less north-west and south-east. Such is the direction of the **Pindus** chain, the principal chain in Greece, forming the western boundary of the plain of Thessaly or valley of the **Salamvria.**[4] Farther south the mountains, many of them 6,000 to 8,000 feet in height, become still more thickly crowded together. North of the Gulf of Corinth the celebrated **Mount Parnassus,** visible from almost all parts of Greece, rises to a height of more than 8,000 feet. The peninsula of the **Morea** or Peloponnesus, south of the Gulf of Corinth, consists of a ring of mountains (enclosing the elevated province of **Arcadia**) with finger-like ranges radiating outwards to the ends of the minor peninsulas in the south-east and south (in **Argolis**, **Laconia**, and **Messenia**). The loftiest of these outer ranges is **Taygetos**, which terminates in **Cape Matapan**, in the extreme south of Greece.

---

[1] See p. 217, *n.* 1

[2] An Italian name signifying 'Black Mountain.' The native name, *Chernagora*, and the Turkish name, *Kara Dagh*, have the same meaning. The Italian name became current throughout Europe at the time when the Italians were the chief traders in the Mediterranean.

[3] An Italian form. See previous note.

[4] The *Peneios* or *Peneus* of the ancients.

In the two mountain groups east of the Salonica-Belgrade road the trend of the mountains where they form a chain is more or less east and west. The most important of these chains is that from which the peninsula takes its name, the **Balkan Mountains**, a chain which for the greater part of its course separates the principality of Bulgaria from Eastern Roumelia, and forms the water-parting between the rivers on the north and south. Like the Pyrenees, this chain is remarkable for the great height of its passes relatively to the general height of the mountains, few of these—except in the east, where the chain sinks in elevation—being under 5,000 feet above sea-level. In the middle of the chain the most important is the **Shipka Pass**, between Philippopolis and Tirnova. West of the **Isker**, the only river which cuts across the chain (in a narrow defile affording no convenient route for traffic), the Balkans become less continuous, and trending more to the north-west almost merge in the mountains of Eastern Servia, which form a continuation of the Carpathians to the south of the Danube. From the Balkans these latter mountains are separated only by the valley of the **Timok**. The chief route between Bulgaria and Eastern Roumelia is situated west of the Isker.

In the angle between the routes from Constantinople and Salonica to Nish, the most important chain is that of the **Rhodope Mountains**, which run parallel to the Balkan at a lower elevation.

For **inland navigation** the frontier rivers on the north are much more important than any of the rivers in the interior; but a great hindrance to the navigation of the Danube exists in what is known as **The Iron Gate**, a narrow defile seventy-five miles in length, with rapids and rocky shallows, occurring where the Carpathians cross from Hungary into Servia, and terminating at Orsova, the Iron Gate proper, the most dangerous point in the whole defile, at the commencement of the Roumanian frontier.

The **climate** of the Balkan Peninsula is subject to greater extremes than that of the other peninsulas of the Mediterranean, and especially extremes of cold, in consequence of the fact that some of the plains and higher inland valleys are exposed to the cold winds from the north-east. In most parts the rainfall is abundant and pretty equally distributed throughout the year. Only Greece and the western coasts have the nearly rainless summers characteristic of the Mediterranean, with the characteristic thick-leaved orange and olive trees.[1] In all parts the summer is warm enough for **maize** and **tobacco**, in the warmer valleys, also for **cotton**, and the fertile soil of the plains renders cultivation easy.

Forests of beech and oak, and, on the higher mountains, of firs and pines still cover vast areas, though in many parts (especially the north-west) they have been cleared, sometimes greatly to the injury of the country. The hill pastures, generally too meagre for horses and cattle, are better fitted for the smaller kinds of live stock, such as **sheep** (above all in Servia and Greece) and **goats** (in Greece, Bosnia, and Servia); and in some parts, particularly in Servia, immense numbers of **pigs** are reared on the mast of the forests. Horses and cattle are chiefly reared in the lower parts of Bosnia and Bulgaria, along the Save and the Danube.

Minerals are widely diffused but not much worked.

The density of the **population** is estimated at about seventy to the square mile, a low degree of density, ascribable partly to the extent of unproductive surface occupied by mountains, partly to the natural obstacles in the way of commerce, but chiefly to the long misrule to which the region has been subjected under the Turks. The densest population is in the low grounds north-west of Constantinople.

Judged by language, the inhabitants of the peninsula may be divided into four principal groups: (1) **Slavs**, making up more than half of the entire population, occupying all the northern regions, and divided into Bulgarians in the east, Servians in the west (in Bosnia, Herzegovina, and Montenegro, as well as in the kingdom of Servia); (2) **Arnauts or Albanians**, descendants of the ancient Illyrians, chiefly in the region between Greece and the area occupied by the Slavs—in the southern part of Albania (Epirus) Greek is now spoken, and hence the Greeks claim to have this portion of the province of Albania added to their kingdom; (3) **Greeks** in the kingdom of Greece, in the lowlands behind Constantinople, on the coast of the Ægean Sea and the Sea of Marmora, on the islands of the Ægean Sea and in Crete;

---

[1] See p. 156.

(4) **Turks**, the smallest division, mostly scattered over the area under Turkish rule as owners of the soil. Besides these there are many **Jews** and **Armenians** as traders in the towns.

As regards **religion**, the Slavs, except in Bosnia, and Greeks are for the most part adherents of the **Greek Church**, the Turks and a portion of the Albanians and Bosnians **Mohammedans**.

The highly mountainous character of the peninsula has always been an obstacle to its being under one political rule, and the peninsula has in fact never formed a single state by itself. At one period it formed a part of the Roman Empire, and later it was almost entirely brought under the sway of the Turks, when these were at the height of their power in the sixteenth and seventeenth centuries. Only Dalmatia remained in the possession of Venice till, about 1800, it fell into Austrian hands. Since the seventeenth century Turkey has been constantly losing ground, and now the peninsula is divided among four independent states, besides the coast strip of Dalmatia (part of the Austrian Empire), the provinces of Bosnia and Herzegovina under Austrian administration, though still nominally part of Turkey, and the principality of Bulgaria, which is tributary to Turkey, but otherwise independent.

States and Towns.—1. European Turkey, extending from the Adriatic and Ionian Seas to the Black Sea between Greece and the northern States. The total area now directly under Turkish rule is only about two-thirds of that of Great Britain. The sovereign, who bears the title of Sultan, is an absolute monarch. By the Turks he is regarded as the *Caliph* or successor of Mohammed, and head of the Mohammedan religion (see p. 231).

CONSTANTINOPLE (875), the capital of the whole Turkish Empire, occupies one of the most favourable sites in the world, where the land route for the commerce between Europe and Asia is crossed by the sea route between the Black Sea and the Ægean,[1] and where the narrowness of the straits at either end of the Sea of Marmora renders defence easy. A small inlet from the Straits of Constantinople or the Bosporus,[2] forms an excellent natural harbour,[3] and confines the Turkish town proper, with its domes and minarets, its narrow streets and its gay bazaars,[4] to a triangular peninsula between it and the Sea of Marmora. The suburbs of **Pera** and **Galata**, occupied by foreigners from Western Europe, and wearing a Western aspect, lie on the other side of this harbour. The importance of this site was early recognised by the Greeks, who founded here the colony of Byzantium in the seventh century B.C. This town was completely superseded by the city founded by and named after Constantine the Great, early in the fourth century A.D., the city which continued to be the capital of the Eastern Roman Empire till it was taken by the Turks in 1453.

---

[1] See Introd. p. 61 (3).

[2] Gr. = 'Passage of the ox,' equivalent to Ox-ford.

[3] The so-called Golden Horn.

[4] A Persian word applied in the East to a place where goods are exposed for sale. It is usually something like what in our towns is called an arcade—that is, a narrow street with rows of shops on either side and arched over, but frequently it is open or only shaded by some light material laid from roof to roof.

Gallipoli, on the strait of the Hellespont (Dardanelles [1]), is the chief station of the Turkish navy. **Salonica**, the second seaport in rank in the Balkan Peninsula, is likewise the second town in population; and the only other town with more than 50,000 inhabitants is **Adrianople**, situated at the point where the Maritza is joined by a tributary on the left bank,[2] the valley of which leads up to the passes across the Eastern Balkans, and accordingly at the meeting-place of important roads from the north-east and north-west.

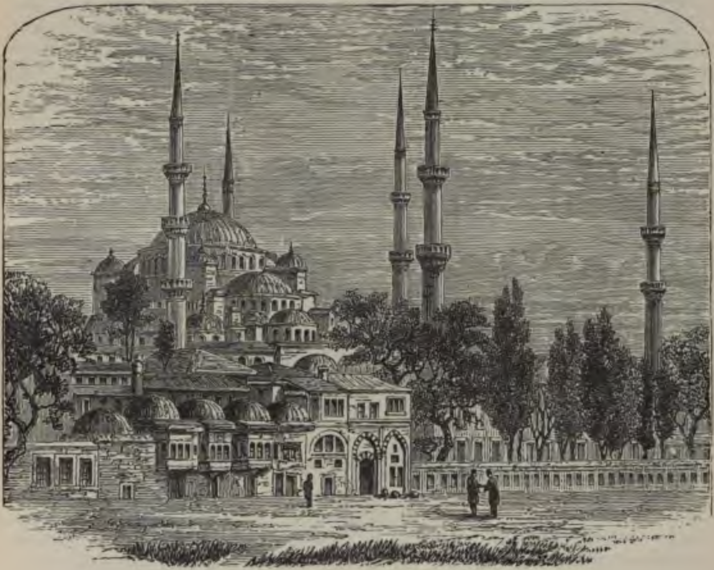


FIG. 41.—MOSQUE OF SULTAN ACHMED, CONSTANTINOPLE.

In the western province of **Albania**, chiefly a region of wild and precipitous limestone mountains, the most noted town is **Yanina**, occupying the site of the anciently famous oracle of Dodona, on a fruitful tableland of Epirus.

Of the Turkish **islands**, the largest is **Crete** or **Candia**, facing the mouth of the Ægean Sea. Only its north coast is provided with numerous bays; and on one of these stands its capital, **Candia.** Since 1898 it has been a self-governing state merely under Turkish suzerainty.

---

[1] Properly the name of the fortresses erected by the Turks on both sides of the strait.

[2] The Tunja. See Introd. p. 61 (2) (*a*) and (3).

2. **Bulgaria** is a principality with which the province of **Eastern Roumelia** is now practically united. The independence of the principality dates only from the Treaty of Berlin, 1878. The capital of the principality is **Sofia**; the chief town in Eastern Roumelia, **Philippopolis.** On the coast of Bulgaria is the fortified seaport of **Varna**, and on the right bank of the Danube—which, unlike the Roumanian or left bank, is high and not subject to inundation—are several towns of importance: **Widdin, Nicopolis, Rustchuk,** &c.

3. **Servia**, a kingdom situated to the west of Bulgaria. The inhabitants made themselves partly independent of Turkey early in the present century, and the independence was made complete and the territory of the state enlarged by the Treaty of Berlin. The capital is **Belgrade**, a strong fortress at the confluence of the Save and the Danube.

4. **Bosnia and Herzegovina**, with the district of **Novi-bazar**, lie to the west and south of Servia. They are rich in minerals, and have one or two fertile valleys, but their resources await development. The capital is **Serayevo**, in an expansion of the valley of the Bosna.

5. **Montenegro**, a natural stronghold in the south of Bosnia, where a Servian people has maintained its independence against the Turks since the fourteenth century. Its territory was enlarged by the Treaty of Berlin, which first gave the little principality (not much more than half the size of Yorkshire), a strip of coast. Capital, **Cetinye.**

6. **Greece**, a kingdom in the south of the peninsula, more than one-fourth of the size of Great Britain, but with a population of only 2,000,000. It achieved its independence of Turkey in 1830, and had its boundaries extended fifty years later, when the fertile wheat-growing valley of Thessaly and other districts in the north were added to it. The mainland is divided into two parts by the **Gulfs of Corinth** and **Ægina**, between which lies the **Isthmus of Corinth**, through which at its narrowest part (less than four miles) a canal navigable by the largest vessels was cut in 1882–93.[1] A large part of the kingdom consists of islands, the largest of which is the long island of **Eubœa or Negroponte**, separated from the mainland only by the narrow channel of Euripus. The islands farther to the south-east are known as the **Cyclades**,[2] those farther north as the **Sporades**,[3] while those on the west of the mainland, together with **Cerigo** in the south, are called **Ionian Islands**—Zante. Corfu (Corcyra or Kerkyra), &c. Except in Thessaly, the most important products of Greece are olives, wine, and a small kind of dried grapes, which take the name of *currants* from the town of Corinth. From the nature of the surface, however, Greece has always been less a country of agriculturists than of seamen and merchants.[4] The capital and the only considerable town in the country is **Athens**, in the province of Attica, north of the Gulf of Ægina. Its citadel, called the Acropolis, is still crowned by some fine ruins, relics of the time when this small but famous city was at the head of civilisation, the home of

---

[1] A project originally started by the Roman Emperor Nero in the 1st century A.D.

[2] Gr. *kyklos*, a circle; so-called because they were imagined by the Greeks to form a circle round the sacred island of Delos.

[3] Gr. = the 'scattered' islands; so-called in contradistinction to the Cyclades.

[4] Compare Brittany, Norway, Illyria (pp. 181, 217, 230).

artists, poets, and philosophers, who have been the admiration of all future ages. At the present day it is the seat of a largely-attended university. Its port is the **Piræus**, with which it is now connected by railway. The anciently celebrated cities of *Argos*, at the head of the bay of Argolis, *Corinth*, on the isthmus, and *Sparta*, on the Eurotas, are now all insignificant places; and, besides Athens, the only towns on the mainland of any importance at the present day are **Patras**, on the southern shore of the Gulf of Corinth, with a large export of currants, and **Larissa**, on the Salamvria, in the plain of Thessaly. Of the towns on the islands, the most important is **Hermopolis**, on the island of Syra, a town with an excellent harbour, which, on account of its central situation[1] in the Ægean Sea, has become a much-frequented coaling station for steamers, as well as a busy centre of commerce; on the Ionian Islands, the most important town is **Corfu**, on the side of the island facing the Turkish province of Albania; besides being the centre of a considerable shipping trade, it is the seat of a university.

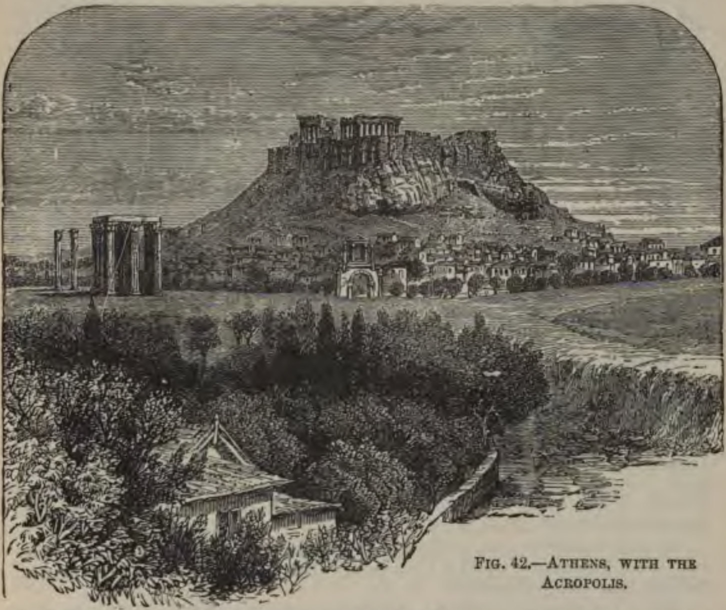


FIG. 42.—ATHENS, WITH THE ACROPOLIS.

COLONIAL AND OTHER POSSESSIONS OF EUROPEAN POWERS.

Denmark.—Greenland and the West Indian islands of St. Thomas, St. John and Santa Cruz, besides the Faroe Islands and Iceland.

---

[1] See Introd. p. 61 (3).

France. — **Immediate Possessions**: Algeria; the territory from the Senegal to the British colony of Sierra Leone, except the British Gambia colony and the Portuguese territory opposite the Bissagos archipelago; Dahome, and a portion of the Ivory Coast in Upper Guinea; the territory between the Gabun and the Congo; the island of Madagascar, with the adjacent islands of Ste. Marie, Nossibé, Mayotte, Comoro Islands, and, to the east, Réunion or Bourbon; Obok and the neighbouring part of the coast of the Gulf of Aden; Pondicherry, Chandernagor, Carical, Mahé, and Yanaon in India; the Society Islands, including Tahiti, the Marquesas, and some other islands in the Pacific; Saigon or French Cochin-China, Cambodia, and Tongking in Indo-China; New Caledonia, the North American islands of St. Pierre and Miquelon off the Newfoundland coast, the West Indian islands of Martinique and Gaudeloupe, part of St. Martin and some smaller islands; French Guiana and Cayenne. **Protectorates**: Tunis, and the empire of Anam. The Sahara and a vast area in the western Sudan are recognised as belonging to the French sphere of influence.

Germany.—In West Africa, Togo Land in Upper Guinea, the coast of the Bight of Biafra, the coast from Cape Frio to the Orange River with the exception of Walvisch Bay; in East Africa, the territory between Portuguese and British East Africa; in Asia, Kiauchou Bay, held on lease from China; in the Pacific Ocean, the north-east of New Guinea, the Bismarck Archipelago (composed chiefly of the islands formerly known as New Britain, New Hanover, and the Admiralty Islands to the north of New Guinea), the Marshall Islands, the Caroline and Pelew Islands, the Ladrone Islands, with the exception of Guam, and part of the Samoan Islands.

Great Britain.—See pages 165–6.

Italy.—Eritrea (Africa), on the Red Sea.

Netherlands.—Java, Madura, and other possessions in the Eastern Archipelago; Surinam or Dutch Guiana, and the West Indian islands of Curaçao, Bonaire, Aruba, &c.

Portugal.—The African islands of Cape Verde, St. Thomas, and Prince's Island (Principe), a small part of the coast of Senegambia, Lower Guinea from the Congo to Cape Frio, the East African coast from Delagoa Bay to Cape Delgado; Goa, Daman, and Diu in India; Macao, off the south-east coast of China, and part of the island of Timor, in the Eastern Archipelago.

Russia.—Siberia, the Trans-Caspian territory, Russian Central Asia, and the lieutenancy of the Caucasus, with Port Arthur in Manchuria, held on lease from China.

Spain.—Ceuta and several stations known as the Presidios on the coast of Morocco, the Canary Islands off the north-west coast of Africa, the islands of Fernando Po and Annobon off the coast of Guinea, and some smaller possessions on the same coast.

Turkey.—**Immediate Possessions**: Asia Minor, Syria, Mesopotamia, and parts of Arabia; Tripoli. **Protectorates**: the tributary principality of Samos in the Ægean Sea, the viceroyalty of Egypt.

The British and Russian possessions outside of Europe are the only ones which contain extensive territories suitable for colonisation by the inhabitants of the mother countries. There are some French, as well as Italian, Spanish, Maltese, and other colonists in Algeria and Tunisia.

ASIA.

Approximate latitudes: Cape Chelyuskin, 78° N.; (north of Lake Victoria Nyanza), Cape Romania, 1° N.; (mouth of San Francisco, north of Lake Nyassa) south of island of Timor, 10° S.

Approximate longitudes: west coast of Asia Minor, 27° E.; East Cape, Behring's Strait, 170° W.

Asia, the largest of the continents, has an area of upwards of seventeen million square miles, or about five times that of Europe, the smallest; while the estimated population, about 830 millions, is only about two and one third times that of Europe. In comparing the position of these two continents, it is most instructive to follow the **parallel of 40° N.**, which in the west of Europe has Madrid immediately to the north of it, in the east of Asia has Peking immediately to the south of it. Whereas therefore this line cuts off only relatively small areas in the south of Europe, it divides Asia into two nearly equal parts; and the contrast as regards the distribution of population is much more striking, inasmuch as less than one-twentieth of the population of Europe dwells to the south of that line, which in Asia has a much smaller fraction of the population on the north.

The chief point of correspondence in **outline** between the two continents lies in the fact that in both there are three great peninsulas in the south,—Arabia, India, and Indo-China, corresponding to the Iberian Peninsula, Italy, and the Balkan Peninsula. In Asia, however, all is on a larger scale. The Arctic coasts of both continents are similar.

The islands and peninsulas on the east side of Asia enclose several border seas more or less cut off from the main body of the ocean, though none of them to so great a degree as the Baltic and the Mediterranean in Europe. The **Sea of Okhotsk**, between the peninsula of Kamchatka and the mainland, though an inland sea, may be most usefully compared with the part of the Arctic Ocean between Scandinavia and Iceland, since it is cut off from the Pacific by a submarine bank[1] the situation of which is marked by the line of the Kurile Islands. **The Sea of Japan**, between the islands of Japan and the mainland, naturally falls to be compared with the North Sea of Europe (the peninsula of Korea answering to that of Jutland); but this difference must be noted, that the elevation of the sea-bed to the extent of 600 feet, though it would unite the islands to the mainland, would leave a deep inland lake occupying the greater part of the area where the sea now lies.[1] **The Yellow Sea**, farther south, between Korea and China, together with the **Eastern Chinese Sea** at its mouth, would all be converted into dry land by a similar elevation, and so also would the **Gulfs of Tongking** and **Siam** (respectively north-east and south of Indo-China), while the land on the south-east of Indo-China would stretch out so as to enclose all the larger islands near (Borneo, Sumatra, and Java, with Bali).[2] To connect these with the mainland a much slighter elevation of the sea-bed would suffice than in the case of the archipelago of the Ægean Sea. As to the storms of Asiatic seas, see Introduction, p. 41.

---

[1] See Introd. p. 24.

As regards **surface**, there are two important points of agreement between Europe and Asia. (1) In both continents the highland regions lie chiefly in the centre, and in the southern peninsulas, while the greater part of the north is a plain. In the case of the southern peninsulas the character of the surface increases the correspondence between Europe and Asia; Arabia being like Spain, a region of arid plateaux, India like Italy, composed of a mountainous region in the peninsula proper, cut off by wide alluvial plains from a continuous barrier of mountains in the north, Indo-China, like the Balkan Peninsula, a mass of irregularly distributed mountains associated with equally mountainous islands.

(2) In both continents the principal mountain chains trend more or less east and west. Only in the north-east do they assume a more northerly trend like that of the Ural Mountains.

There are, however, three important points of difference. (1) The mountain ranges of Asia are not only, as might be expected from the greater size of the continent, of much greater extent than those of Europe, but also of much greater height. The **Himalayas**, in the north of India, are the highest mountains in the world. **Mount Everest**,[3] the highest known peak in the chain, attains a height of 29,000 feet or more than five miles, and besides it there are in the southern or higher of the two chains of which it is composed seventeen peaks of more than 25,000 feet in height, and accordingly, all higher than the highest of the Andes of South America, the next highest range in the world.[1]

---

[1] Comp. p. 158.

[2] A deep strait separates Bali from Lombok.

[3] Sometimes called *Gaurisankar*, though it is doubtful whether this native name properly belongs to Mount Everest.

(2) The extent and height of the plateaux of Asia are enormously greater than those of Europe. The whole of Central Asia is indeed a series of lofty plateaux varying from 2,000 to 20,000 feet in height, enclosed and partly cut off from one another by mountains, the chief of which take their origin in an elevated region to the north-west of India (about 72° E.) From this centre the **Himalayas** proceed south-eastwards, the **Karakorum** Mountains (by some regarded as a third chain of the Himalayas) for a shorter distance in the same direction; the **Kuen-lun** Mountains proceed east and slightly south; the **Tian-Shan** Mountains more towards the north-east.

(3) While all the great mountain ranges of Europe form water-partings, those of Asia are frequently pierced by river valleys, and hence many of the mountain passes of Asia are not across the heads of valleys but through narrow defiles along river-banks or in their neighbourhood. The southern chain of the Himalayas is broken up by river gorges into a great number of sections, while the two greater rivers, the Indus and Brahmaputra, cut right across the whole system.

The **principal rivers** of Asia are necessarily of much greater length than those of Europe. All except those of the Siberian plains rise in the central plateau and flow east, south-east, or south to the Pacific and Indian Oceans; and these all belonging to the monsoon region[2] are all liable to overflow their banks in summer, while at all seasons of the year they are fed with copious supplies of water from the elevated areas in which they have their head-streams. In the interior, both on the high plateau from which the encircling mountains cut off the supplies of rain,[3] and in the plains of the west, between the Caspian Sea and the mountains, there are numerous rivers which after a longer or shorter course dry up in sandy deserts, their water being partly absorbed by the porous soil, partly evaporated. Such rivers are, however, of the highest importance, since on their banks are found fertile oases, sometimes with large towns for their centre.[4]

The **fresh-water lakes** of Asia are relatively of far less importance than those of Europe. The largest, **Lake Baikal,** on the Siberian slopes of the mountains in the north-east, is nearly twice the size of Lake Ladoga; but there is no lake-studded district in Asia like that of Finland and Scandinavia, or even like that of the Alps in Europe. On the other hand, there are large inland seas of salt or brackish water, besides an immense number of small salt lakes in the low-lying region adjoining Europe south of the Ural Mountains, and other salt lakes elsewhere. The Caspian Sea, 170,000 square miles in area (twice the size of Great Britain), is the largest inland sheet of water in the world. The Sea of Aral (rather more than twice the size of Lake Baikal) is inferior in size only to the largest lakes of Africa and America, Lake Balkhash, about one-seventh larger than Lake Ladoga.[1]

---

[1] See section across Asia, p. 63. [2] See pp. 42, 51. [3] See p. 52. [4] See pp. 265, 276, 299.

From its more easterly position, Asia[2] has a **climate** subject to greater extremes of temperature than Europe.

The mean temperature of the year is everywhere lower than in corresponding latitudes in the western Continent, the mean temperature of January, the coldest month, relatively still lower, but the mean temperature of July, the hottest, everywhere higher, notwithstanding that on and near the east coast the sea has a certain effect in moderating extremes. Owing to the great width from east to west of the land-mass to which it belongs, the coldest area in the world lies towards the north-east of this continent, and it is a fortunate thing for that part of Asia which lies to the south that the mountains intervene to shelter it from the cold winds that would otherwise sweep down on it from this area.

The **rainfall** is insufficient, not only, as already intimated, in many parts of the interior, but also in the south-west (as far east as the Indus valley), where the southerly winds of summer blow not over the ocean but over Africa or both Africa and Arabia. On the other hand, in the monsoon region in the south-east, and especially in the tropical portion of it, the rainfall is very abundant.

The region just referred to, including the whole area from India to the north of China, together with the islands of the Eastern Archipelago and Japan, is that which contains the great mass of the Asiatic population. It comprises, according to the best estimates, seven-eighths of the inhabitants, although not very much more than a quarter of the area. In the rest of Asia, the average density of the population is only about eight to the square mile, or about half that of Norway; the principal parts in which a greater density is found are the western skirts of the central tablelands and some districts in Asia Minor.

Most of the **inhabitants** of Asia belong to two types, the **Mongolian** and **Caucasian**, the former characterised among other things by yellow complexions without ruddy tinge, small almond-shaped obliquely set eyes and high cheek-bones; the latter by a fair complexion usually with a ruddy tinge, low cheek-bones, and round eyes set straight. Of the Mongolian type (most abundant in the east) the Chinese are the most numerous representatives, as the Hindus are of the Caucasian. Each type is broken up into great groups the languages of which are entirely distinct from each other, while the groups are themselves subdivided into smaller groups speaking allied languages.

---

[1] See p. 221.

[2] See Introd. p. 51.

Among the races of the Mongolian type, the most important of the great groups are the Chinese and Anamese, the Finno-Tatars, inhabiting Siberia and Western Asia, and the Malays[1] in the south-east. Of those of the Caucasian type, the chief great linguistic groups are the Aryan (comprising Hindus and Iranians), and the Semitic (of which the Arabs are now the principal representatives). To this type belong also the majority of the inhabitants of the Caucasus (whence the name Caucasian).

As regards **religion**, Asia is remarkable as the cradle of all the great religions of the world—Judaism, Christianity, and Mohammedanism; Zoroastrianism, Brahmanism, Buddhism; and three of these (the first three) arose among Semitic peoples, the others among Aryans. **Brahmanism** or **Hinduism**, **Buddhism**, and **Mohammedanism** are now the prevailing religions, the first in India, to which it is confined, the second throughout the monsoon area except in India, the land of its birth, and the third in western Asia and partly in India and the Eastern Archipelago.

Of these religions, Judaism, Christianity, and Mohammedanism all agree in declaring the existence of one Supreme Being, and are hence known as monotheistic religions. **Mohammedanism** takes its name from Mohammed, an Arabian who founded this religion early in the seventh century of our era. The most noteworthy effects of Mohammedanism on the life of its professors arise from its recognition of polygamy, its prohibition of the use of wine (a prohibition observed in some Mohammedan countries with great strictness, in others scarcely regarded at all), and its injunction on all its followers to make a pilgrimage to the sacred city of Mecca (see Arabia, p. 274) at least once in their lives. In some Mohammedan countries, those who have made this pilgrimage are distinguished by a peculiar dress. In all the more civilised Mohammedan countries, the *mosques* or temples are a striking feature, and are generally distinguished by the possession of tall slender towers called minarets, from which a crier (muezzin) calls the people to prayer (see cuts, p. 253 and p. 285).

Brahmanism or Hinduism is the ancient religion of the Hindus, and, though possessing sacred books of an exalted character, is in its present degraded form chiefly characterised by the worship of innumerable idols and the observance of caste distinctions, in consequence of which different sections of the people are kept entirely separate from one another, intermarriage being prohibited, and members of one caste not allowed to follow callings peculiar to another. The four original great castes of the Brahmans or priests, the Kshatriyas or warriors, the

---

[1] See pp. 249, 290, 151.

Vaisyas or merchants and tillers of the ground, and the Sudras or labourers, have in process of time been subdivided into a great many minor castes, the isolation of which is often as strictly maintained as that between the great castes. Pariahs or those who are members of no caste are treated with contempt by all who can claim to belong to any caste, even the lowest.

Buddhism derives its name from the epithet Buddha, meaning enlightened, applied to the founder of this religion, who lived in the fifth or sixth century B.C. The religion he taught was meant to be a reform of the corrupt form of Brahmanism which then prevailed in India, and was specially directed against idolatry and the observance of caste. He endeavoured to substitute for the Brahmanism of his time a lofty system of morality, in which the virtues of gentleness and kindness to animals were particularly enforced; but at the present day the chief outward signs of the observance of this religion are the numerous (often colossal) statues of Buddha, the *dagobas* or *pagodas* erected to enshrine relics of Buddha (see cut, p. 239), and the monasteries in which the swarms of yellow-robed priests or *bonzes* generally dwell.

Zoroastrianism is the religion of the ancient Persians, and is now almost extinct, having only a few professors in the heart of Persia and in Bombay, and one or two other towns in India. They believe in the existence of a good and an evil deity, and are sometimes called fire-worshippers, because they regard light and fire as symbols of the former. In India they are known as Parsis.

ASIATIC COUNTRIES.

I. *COUNTRIES OUTSIDE OF THE MONSOON REGION.*

1. **SIBERIA** is the Asiatic continuation of the more northerly parts of Russia in Europe, and in the north-west is politically as well as physically separated from Russia in Europe by the Ural Mountains, which in this part of their course form on the Asiatic side a much more marked feature than on the European side. Its area is not far short of five millions of square miles, and about five millions make up the number of its settled population—a result chiefly of its severe climate, but partly also of its remoteness from the chief seats of civilisation.

Plains occupy the greater part of the west, but mountains and hills cover a considerable area in the east, and more especially the south-east (**Yablonoi** and **Stanovoi** ranges). Amidst these mountains, partly on the Chinese frontier, flows the navigable **Amur.** Mountains also occupy the southern frontier as far west as the 80th meridian of east longitude. Among these are the **Altai** and other mountains, the northern spurs of which are rich in

minerals (silver-yielding lead, graphite,[1] coal, &c.) Siberia also yields abundance of ivory derived from the tusks of the mammoth or woolly elephant, now extinct.[2] The New Siberian Islands, off the mouth of the Lena, are specially rich in these remains.

The aspect of the vegetation is similar to that of the corresponding parts of Russia in Europe. In the north is a vast area of toundras, extending in some parts almost to 60° N. There then follows an area of forests and marshes with fur-bearing animals, an area traversed by magnificent navigable rivers draining into the Arctic Ocean—the **Ob** or Obi and **Yenisei** in the west, the **Lena** in Eastern Siberia. Only in the southern parts of Western Siberia is there land suited for agriculture, and here, among the valleys opening out from the central highlands of Asia, there are some deposits of rich black soil such as is found in Southern Russia.[3] There chiefly lies the hope of the future development of Siberia, when it has been brought into more intimate connection with the commerce of Western Europe. Severe as the winter is (too cold for European fruit-trees), the summers are not only suitable for the growth of wheat, but even warm enough for melons to ripen in every Siberian garden.

The great defect of Siberia at present is the want of communications. There are few roads, and few railways. The navigable rivers are hence invaluable for commerce, and, above all, the rivers of the Ob and the Yenisei basins, which are made use of in the overland trade (in tea, woollen goods, and furs) between Russia and China. Near the right bank of the **Selenga**, in the south-east of Lake Baikal, lie the two adjoining towns where the products of the two empires are exchanged—**Kiakhta**, on the Russian, **Maimachin**, on the Chinese side of the frontier. Thence the products were formerly conveyed by the Selenga to Lake Baikal, and thence chiefly by water to **Tobolsk**, the nearest town on the Irtish to the southern passes across the Urals.[4]

Important as these highways of commerce are, they are subject to the drawback that they can be used only for part of the year, the rivers being frozen over for a longer or shorter time in winter, in some parts for nearly six months. Hence the breaking-up of the ice at the end of winter is the most important event of the year in Siberia, and the spectacle then produced on the Siberian rivers is on a scale of grandeur corresponding to its importance. The break-up of the ice begins in the south, and so rapidly does it proceed that the lower parts of the rivers, still dammed by ice, are unable to carry off the water, which consequently streams swiftly up the tributaries laden with numberless ice-blocks. Backwards and forwards the water sways for days together, until, under the influence of the south winds, the ice melts away, and the long winter is followed at a bound by the long summer.

---

[1] Exported to Nürnberg, in Germany, for the making of lead pencils.

[2] Entire carcases of this long extinct animal have been found preserved in the frozen ground of northern Siberia.

[3] See p. 222–3.

[4] The sea-route to the mouths of the Siberian rivers which the Swedish navigator Nordenskiöld maintained to be practicable, after his voyage round the north coast of Europe and Asia in 1878–79, has not yet proved commercially successful.

To increase the utility of the river trade-route a railway has been made across the Ural Mountains from Perm by Ekaterinburg (p. 219) to Tyumen, the head of navigation on one of the western rivers of the Ob basin, and further south the great Siberian railway has been constructed to connect Eastern Asia with the Russian railway system. Already (1900) this railway reaches several hundred miles east of Lake Baikal, across which a train-ferry and ice-breaker plies to connect the sections on opposite sides.

The inhabitants of Siberia are partly native, partly colonists from Russia, partly Russian convicts and political offenders, who have been deported thither.

The native inhabitants are chiefly of the Mongolian type and members of the Finno-Tatar family. In the north they are fishers and hunters, and are mostly heathen; in the south, nomadic herdsmen, followers of Mohammed. The colonists are chiefly engaged in agriculture and mining.

All the chief towns stand on the great rivers and their navigable tributaries. The largest is **Irkutsk**, on the Angara, a tributary of the Yenisei, a little below its issue from Lake Baikal, hence an important station on the trade-route between Russia and China. **Yakutsk**, on the Lena, at the point nearest the Sea of Okhotsk, is an important centre for the fur trade. **Tomsk**, on the Ob, the chief centre of the gold-washers.[1] It is now the seat of a university. **Tobolsk**, see above.

2. RUSSIAN CENTRAL ASIA.—The territory lying to the south of the Ural Mountains, east of the Caspian, west of the Chinese Empire, and north of Persia and Afghanistan, comprises an area of about one-and-a-half million square miles, with a population of less than five millions. This population is chiefly collected in the south-east, where the valleys opening out from the Tian-Shan Mountains, contain the most fertile and best watered soil, and where accordingly there is a settled population pursuing agriculture. Farther to the north and west agriculture can be carried on only in the neighbourhood of rivers, which supply water for irrigation, and the chief towns are the centres of oases seamed with canals, led from the rivers for that purpose.

---

[1] That is of those who obtain gold from earthy matter by washing away the lighter material with which it is mixed, as distinguished from those who obtain it by the crushing of quartz reefs.

The principal rivers are the **Ili**, which finally flows through a swampy delta into Lake Balkhash; the **Sir**,[1] which flows into the north, the **Amu**,[1] which flows into the south of the Sea of Aral; the **Zerafshan**, which rises among the southern mountains, but after a westerly course dries up in the sands; and the **Murghab**, which enters this region from Afghanistan in the south, and also dries up. On or near the Sir stand **Khokan** and **TASHKENT**, the latter the principal town in Central Asia; near the Amu, **Khiva**; on the Zerafshan, **Samarkand** and **Bukhara**; on the Murghab, **Merv**.

The greater part of the region consists of steppes, roamed over by nomadic tribes (Kirghiz, &c.), who dwell in felt tents, called yurtas, and rear horses, cattle, and camels. Mohammedanism is the prevailing religion.

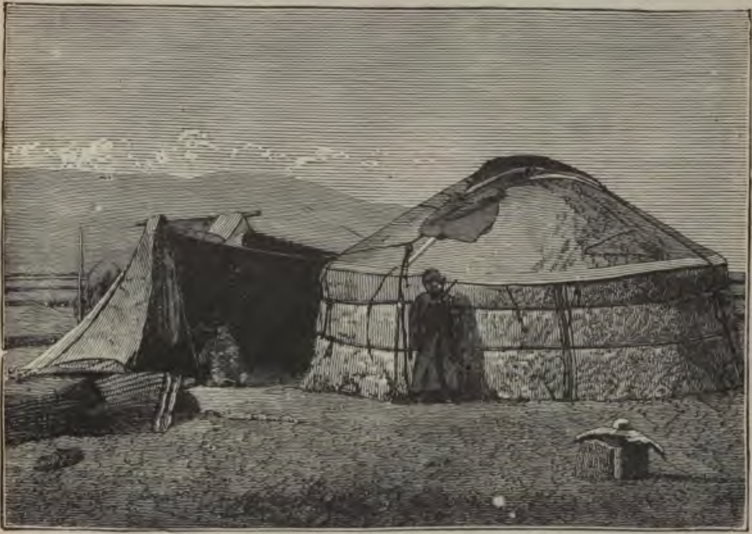


FIG. 43.—A YURTA OR FELT TENT OF CENTRAL ASIA.

Most of this territory is under Russian sway, and even where not directly subject to Russia is under Russian influence. A railway (the Trans-Caspian Railway) has been constructed by the Russians from the Caspian Sea south-eastwards near the line of the Persian frontier, and then across the desert north-eastwards by way of Merv and Bokhara to Samarkand.

3. CAUCASIA AND ARMENIA.—These are mountainous territories lying to the south-east of Russia in Europe, between the Black Sea and the Caspian. Caucasia takes its name from the **Caucasus Mountains**, a range which stretches from west-north-west to east-south-east for a distance of 700 miles, and has several summits above 16,000 feet (**Elbruz**, 18,500 feet). The principal pass in the chain lies about the middle, just to the east of Mount Kazbek, and is now crossed by a well-made Russian road leading from Vladikavkas[1] on the north through the gorge of Dariel to Tiflis in the south.

---

[1] To these names the word *Darya*, meaning 'river, is often added.

The western half of the chain is the narrower, the eastern half spreading out to a considerable extent on the north, where it consists of an assemblage of lofty plateaux, natural fortresses bounded by huge precipices, which are washed at their base by torrents.

A still greater contrast is presented by the north and south. On the north, steppes occupied by nomads and their herds come close up to the base of the mountains, while on the south, protected by the mountain barrier from cold winds,[2] and hence from winter frosts, the orchards of the lower slopes are succeeded by vineyards, cornfields, and pastures in rich alternation. Steppes are found on this side only in the eastern lowlands, while in the west, where summer rains are drawn from the Black Sea with the regularity of the monsoon area,[3] dense forests advance close up to the water's edge and leave no room for man.

The southern limit of the Caucasus is formed by the valley which bounds the Armenian plateau on the north, and is traversed by two rivers flowing in opposite directions—the **Rion** (ancient Phasis[4]) to the Black Sea, and the **Kur** to the Caspian. A railway, the highest elevation of which is about 2,400 feet, now traverses this valley from end to end, from the ports of **Batum** and **Poti**, on the Black Sea, to **Baku**, the centre of a district rich in petroleum, on the Caspian. The petroleum is used as fuel in working the engines on the Trans-Caspian railway. In the west of the Caucasus, north of the main chain, there is another supply of petroleum, less abundant, but more important in the commerce of the west, since the petroleum is conveyed by a pipe to a small port on the Black Sea.

The **Armenian Plateau** is composed of a series of mountain-traversed table-lands, two of which are so completely isolated as to be occupied by salt lakes[5] (**Van and Urumia**). **Lake Gokcha** is almost completely enclosed by mountains, from which it receives numerous influents on all sides, but it has an outlet to the Aras (tributary Kur), and is therefore fresh. Among these table-lands are the head-waters, not only of the Kur and its tributary the

---

[1] The terminus of a line of railway connected with the railway system of Russia in Europe.

[2] See Introd. p. 52, and the pages referred to in the note.

[3] See Introd. pp. 42, 51, and p. 279.

[4] Traversing the country whence the *pheasant* or *Phasian* bird was introduced into Europe.

[5] See Introd. p. 31.

Aras, but also of the Tigris and Euphrates. The table-lands are mostly steppe-like in character, and hence the occupations of the people are mostly pastoral; but agriculture is also largely pursued, and fruit-trees[1] are abundant.

The isolation both of the valleys of Caucasia and the table-lands of Armenia is illustrated in several ways by their inhabitants and their **fauna**.[2] The Caucasus is inhabited by a large number of tribes belonging to the type which takes its name from this region, but speaking languages wholly distinct from those of the Aryan stock, and even in some cases from each other. Independent, and lovers of freedom, like all mountain tribes, they have been brought under one rule only through being conquered by Russia in the present century after fifty years of conflict, and one of the chief tribes, the Circassians, rather than submit to the Russian yoke, migrated to Turkey and settled there among fellow-Mohammedans. Among the **animals** of the Caucasus are the European bison, elsewhere extinct except in the forests of Western Russia, the chamois, and a peculiar kind of ibex, one of the highest of mountain-climbers.

The **Armenians**, another people of Caucasian type, are peculiar both in language and religion, the latter being an ancient and independent branch of Christianity. Cattle-rearers and tillers of the ground at home, they emigrate in large numbers, and are among the principal traders of the Levant. The Armenians have never obtained political unity, however, nor have they been able to keep out foreign elements from their isolated table-lands, which are in many places the haunts of nomadic plundering **Kurds**.

At present Armenia is divided among three states, all the three divisions meeting in **Mount Ararat**, an extinct volcano 17,000 feet high. The northern division, with the town of **Erivan** and the fortress of **Kars** in the west, and the Aras region in the east, belongs to Russia; the south-western division, with Lake Van and **Erzerum**, the chief town on the trade-route between Trebizonde and North-western Persia, to Turkey;[3] the south-eastern division, with Lake Urumia and the town of TABRIZ, to Persia.

The whole of the Russian territory in this part of Asia forms the **Lieutenancy of the Caucasus**, which is divided into **Cis-Caucasia**, north of the Caucasus Mountains, and **Trans-Caucasia** (including Russian

---

[1] The apricot is a native of this region, and was introduced thence into Southern Europe in the fourth century B.C.

[2] A collective name for the animals of a region.

[3] Comp. p. 276.

Armenia), to the south of that chain. The seat of government is TIFLIS,[1] occupying the centre of a rich valley and, as already indicated, at the point where the main road through that valley is crossed by the only road across the Caucasus.

4. TURKEY IN ASIA.—The territory under Turkish rule in Asia comprises Asia Minor with part of Armenia (see p. 266), Syria, Mesopotamia, and parts of Arabia (see p. 273).

Asia Minor is a plateau upwards of 3,000 feet in height bordered on the north and south by mountain chains parallel to the sea-coast, but opening on the west by numerous valleys, the submerged portions of which, as in the opposite Balkan Peninsula,[2] now form gulfs lying between rocky promontories and behind a breastwork of islands. The principal continuous mountain range is that on the south, the **Taurus**, which follows the windings of the coast, till in the east it turns inland north-eastwards, and is succeeded by the lower range of the Anti-Taurus. In the portion that trends northwards are the gorges known as the Cilician Gates, which afford a passage into Syria for the commerce of the west and north of the table-land.

Towards the south coast flow only a large number of mountain torrents from the Taurus range, the general slope of the plateau (except in the west) being towards the north, where the **Halys, or Kizil Irmak,**[3] pierces the mountains before entering the Black Sea by a delta. On the west the principal river is the **Menderes,** ancient *Meander*, which on account of its numerous windings has given a word to the English language. At the broadest part of the peninsula the drainage of the interior is inland, and here a large salt desert has at its lowest part a long and shallow salt lake.

This salt desert is the most arid part of the peninsula, but the rainfall is scanty everywhere within the border mountains. Only in the western valleys, where the rivers afford the means of irrigation, does cultivation ascend far into the interior, and there the products are those of the warmest parts of the Mediterranean peninsulas—not only sweet wine, olives, oranges, and other southern fruits, but also tobacco and cotton, as well as mastic.[4] On the inland steppes sheep are reared, and the district of Angora adjoining the salt steppe on the north is famous for a silky-haired race of goats (whence Angora wool).

[1] See Introd. p. 61 (3) (*b*).

[2] See p. 248.

[3] Turkish = 'Red River.'

[4] A kind of resin.

The inhabitants of the interior are chiefly Turks; on the coasts, where the largest towns have always been situated, are still many Greeks, as there were in ancient times. Of the coast towns now existing the most important is **SMYRNA**, at the head of a deep inlet about the middle of the west coast. It is the last survivor of a number of ancient seaports (*Miletus*, *Ephesus*, and *Phocæa*), most of which have decayed through the silting up of their harbours.[1] A railway now proceeds from Smyrna inland as far as **Alashehr**, from which point now start the camel caravans that cross the interior. **Konieh**, on the south-west of the inland salt steppe, is the meeting-place of the chief caravan routes. **Brussa**, a little to the south of the Sea of Marmora, is celebrated as having been the capital of the Turkish Empire before the Turks gained a footing in Europe. **Scutari**, on the Bosporus, is a suburb of Constantinople.

Of the islands, **Samos**, about the middle of the west coast, is tributary to Turkey, but otherwise independent. **Cyprus**,[2] off the south coast, about half the size of Wales, consists of a rich plain, furnishing wine, cotton, mastic, and other products, stretching between two bays in the east and west and ranges of mountains in the north and south. It is now under British administration, though still nominally a part of the Turkish Empire. Its capital is **Levkosia, or Nicosia**, in the plain; its chief port, **Larnaca**, on a bay in the south-east.

Syria and Palestine.—This portion of Asiatic Turkey consists mainly of a limestone plateau, but the southern two-thirds of it is divisible into four longitudinal strips running parallel to the eastern shores of the Mediterranean Sea. In the west there is a plain, extremely narrow in the north (the ancient Phœnicia), broader to the south of Mount Carmel (the fertile plain of Sharon), and still broader farther south, where the coast trends south-westwards towards Egypt, and the interior (the land of the ancient Philistines) becomes first steppe-like[3] and then desert. East of the plain the ground rises rapidly in the north to the chain of the **Lebanon Mountains**, which are followed on the south by an almost continuous plateau. The next strip on the east is a long valley, which in the north, between the ranges of Lebanon and Anti-Lebanon, is above the level of the sea, but rapidly falls below that level in the portion known as the **Ghor**. In this valley rise all the chief rivers. The **Orontes** flows northwards and finally westwards round the northern extremity of a continuation of

---

[1] Smyrna owes its continued existence to the fact that the river which enters the inlet on which it stands enters not at the head of the inlet but on the north side, where its deposits have extended the coast-line without blocking up the entrance to the gulf.

[2] Anciently rich in copper, this island derives its name from the Greek word for that metal.

[3] See Introd. p. 58.

Lebanon ; the **Leontes** southwards and then westwards round the southern extremity of the same range ; and the **Jordan**, suddenly emerging from underground as a full-bodied stream,[1] proceeds southwards with a rapid fall through the Ghor, traversing in succession the fresh-water lakes of **Huleh** (Merom) and **Galilee** (the latter nearly 700 feet below sea-level), and ends in the **Dead Sea**, a sea remarkable for the intense saltness of its waters as well as for the fact that it occupies the deepest depression on the land surface of the earth (the surface of the sea 1,300 feet below that of the Mediterranean). South of the Dead Sea the Ghor gradually rises in elevation till the ground again reaches a higher level than that of the Mediterranean.

The fourth longitudinal strip is another plateau which gradually passes eastward into a desert.

From a remote period a land of Semites, first of Jews and then of Arabs (whose language has been the prevailing one since about the eighth century), Syria is a country of peculiar interest to all the civilised nations of the West, as the home of the Judaic religion and the birthplace of Christianity. To the adherents of both these religions **Jerusalem** is a sacred city. It stands at the height of 2,500 feet above the sea on a plateau west of the mouth of the Jordan. Not less sacred to Christians is **Bethlehem**, the birthplace of Christ, three miles to the south. Several of the other important towns are also well known from the sacred writings of the Jews and Christians ; among these, **DAMASCUS**, 'on the banks of Abana and Pharpar lucid streams,' a city occupying a site of rare beauty and fertility, with such geographical surroundings that it has been a place of importance from the very dawn of history. The Abana of Scripture, now the Barada, besides endowing its environs with luxuriant verdure, is the source of its commerce, inasmuch as in breaking through the range of Anti-Lebanon it opens up a pass by which in ancient times the traffic of the West was brought from *Tyre* and *Sidon*,[2] as it is in modern times from **Beirut**. Landwards, caravans proceed north, east, and south, across the desert. **Haleb**, or **Aleppo**,[3] 200 miles farther north, occupies an oasis situated about midway between the Mediterranean and the Euphrates, where that river in its middle course approaches nearest to the sea, and has hence been a trade-centre from time immemorial. In ancient times the seaports on this route were *Antioch*, on the Orontes, and *Seleucia* on the coast ; the modern seaport is **Alexandretta** or **Iskenderun**,[4] on the gulf of the same name, in the angle between Syria and Asia Minor. Along one of the routes connecting Aleppo with the sea it has frequently been proposed to construct a railway.

---

[1] See Introd. p. 29, and comp. p. 110 *n.* 2.

[2] The harbours of Tyre and Sidon have been destroyed by the rise of the land on this part of the Syrian coast.

[3] The latter name, an Italian form, is another survival of the former predominance of Italy in the commerce of the East (see p. 249 *n.* 2). Before the discovery of the seaway to India the Venetians had forty large trading-houses in Aleppo.

[4] Both names, the latter Turkish, derived from Alexander (the Great).

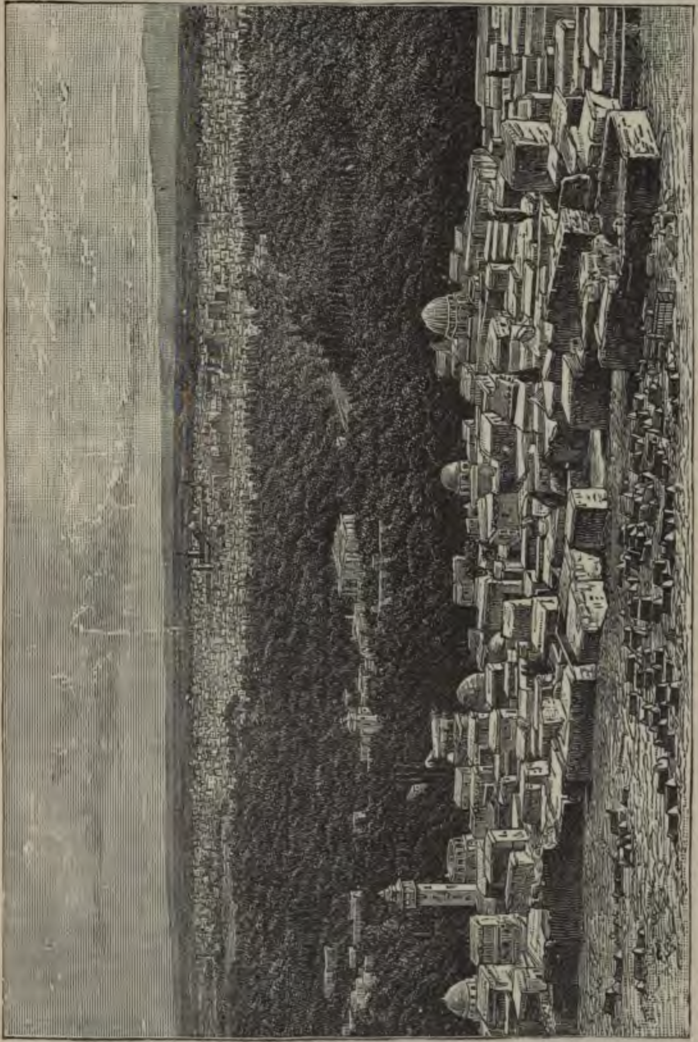


FIG. 44.—DAMASCUS. (By the kind permission of Messrs. Nelson and Sons.)

Mesopotamia.—Both this name, derived from the Greek, meaning 'the middle of the rivers,' and the Arab name El Jezireh, meaning 'island,' refer to the two great rivers **Euphrates** and **Tigris**, by which in fact the region is almost islanded. These two rivers, after quitting the Armenian plateau, first diverge but afterwards approach one another to within a distance of about thirty miles, and now ultimately unite to form the **Shat-el-Arab**, before entering the head of the Persian Gulf, into which in ancient times they flowed separately. To these streams the region owes all its fertility. The rains are too scanty for agriculture, but the inundations due to the melting of Armenian snows annually cover the adjoining surface with layers of rich soil, and at the same time supply the necessary moisture, and at an early date taught the dwellers on the banks of the rivers to use their waters more effectually by means of irrigation canals. Hence this region has always been occupied at least by a tolerably dense population, and the density has reached at different times and at different places a very high degree round great towns which arose on or near the banks of one of the rivers and became the centres of powerful states.

On the Tigris, such towns have always stood at points from which roads ascend to convenient passes in the eastern highlands. In such a position, on the left bank of the Tigris, stood in ancient times *Nineveh*, the immense ruins of which were discovered about forty years ago, and opposite the same point afterwards rose **Mosul**, still an important town. Lower down, *Seleucia*, *Ctesiphon*, and **Bagdad**, all arose on sites within no great distance from each other at the end of another pass-road; and the last of these still survives, although greatly declined as compared with what it was when the Arabs were at the height of their power, and this was the capital of their empire.[1] On the Euphrates there is now no town of importance, that river being too much exposed to the attacks of the plundering tribes of the desert; but in ancient times there stood on its banks the large and magnificent city of *Babylon*, at the point where the river begins to be navigable both up and down stream. In the middle part of their course both Euphrates and Tigris are too impetuous for up-stream navigation, and goods are only floated down on rafts supported by inflated sheep-skins. The wood of the rafts is itself an important commodity in this treeless region. On the Shat-el-Arab stands **Basra** or **Bussora**, accessible to sea-going ships, and formerly the chief seaport of this region, but now outvied by the Persian town of Mohammera, at the head of the delta.

---

[1] This was the seat of empire of Harun-al-Rashid, the famous contemporary of Charlemagne, so well known from the 'Arabian Nights.'

5. **ARABIA**, the largest peninsula in the world, being upwards of a million square miles in extent, or nearly five times as large as the Iberian Peninsula, which it also exceeds in average elevation (3,500 feet as against about 2,500). One half of the peninsula lies to the south of the tropic of Cancer.

The **mountains** of Arabia are situated along the coasts, and especially along the Red Sea coast in the west and the Gulf of Oman in the south-east. Less elevated are the heights along the south coast facing the Indian Ocean, and along the east facing the Persian Gulf. In the extreme north-west, between the **Gulfs of Suez** and **Akabah**, the northern branches of the Red Sea, the granite **Mount Sinai** rises abruptly[1] to the height of more than 9,000 feet amidst a rocky peninsula.

Nearly the whole of Arabia is scantily supplied with rain, and the coast mountains rob the interior of rain almost entirely.[2] Hence in the north and south the greater part of the interior is an utterly uninhabitable desert. Only in the middle the region known as the **Nejd** or **Negd** is studded with numerous date-crowned oases, the home of the Beduins or nomadic Arabs, who rear with care and affection immense numbers of horses and single-humped camels, both of which are among the finest in the world. Here, too, ostriches and gazelles bear witness to the likeness which this part of Asia presents to Africa (see p. 274).

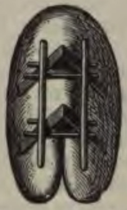


FIG. 45.—THE SADDLE, OR PAD, ON WHICH A CAMEL'S LOAD IS LAID.

The settled population inhabits the coast-strips, and above all the more mountainous tropical portions, which are the best supplied with rain—**Yemen** and part of **Hejaz** in the west, **Oman** in the south-east. Even in these districts, however, the rains are only periodical, and sometimes fail for years together, and hence water has from the remotest period been carefully stored in tanks for irrigation. Among the products of these regions, besides the date and coco-nut[3] palms, durrah[4] and other grains, are numerous aromatic trees and shrubs, balsam, gum, frankincense, as well as the celebrated coffee which takes its name from the port of **Mocha**, whence it was at one time chiefly exported.

---

[1] See Introd. p. 25.

[2] See Introd. p. 52.

[3] Frequently spelt *cocoa-nut*, but throughout this textbook *coco-nut*, to avoid confusion with the cacao tree from which the so-called cocoa is obtained.

[4] One of the cereals to which the name of millet is given. Like several other so-called millets, it has several ears of grain at the end of each stalk. It is the principal cereal grown by the natives in most parts of Africa and in Southern India.

Politically the greater part of the west coast is part of Asiatic Turkey, and so also is the northern half of the strip on the Persian Gulf, but even in these parts the Arabs have an organisation of their own. Small groups of families acknowledge the authority of a **sheikh**, and the subjects of several sheikhs acknowledge the supremacy of an **emir**. The most powerful emir is the Imaum of **Maskat** (Muscat), who rules over Oman. The fortress of Aden, with its fine natural harbour and a small district round on the south coast near the Straits of Babelmandeb, belongs to Great Britain, which also possesses several small islands on the coast. Sinai and the north-west form part of Egypt.

The most celebrated towns are in the Turkish portion of the peninsula on the west. Here, about the middle, is **Mecca**, the birthplace of Mohammed,[1] the founder of the Mohammedan religion; the sacred city of the ancient Arabs, and now of all Mohammedans. At the pilgrimage, or *Haj*, which takes place in spring, myriads of pilgrims, attended by immense troops of camels, assemble for worship and trade. To the west is **Jedda**, the port of Mecca; to the north **Medina**.

The Arabs, now the most numerous, long the most aggressive of the Semitic races, inhabit the whole peninsula, but their true home is the plateau of Nejd, whence have issued all the continuous streams of Arabs, who, soon after the founding of the Mohammedan religion, spread in conquering armies eastwards to India, and westwards to the Iberian Peninsula, and established in the Middle Ages splendid monarchies both in the East and West, and have since then constantly spread as traders through Eastern and Inner Africa, as well as in Asia as far as the Eastern Archipelago.

6. IRANIA.—This is a general name applied to the table-lands between Mesopotamia and the plains of the Indus, and thus embraces an area of about a million square miles wholly outside of the tropics (nowhere below 25° N.). The population, however, is estimated at only about twelve millions, a consequence partly of the nature of the surface and climate, partly of the state of government.

The table-lands have an average elevation about equal to that of Arabia (about 8,500 feet), and are begirt and traversed by mountain ranges, the passes across which are generally high and inconvenient. In the western half the mountains generally trend south-eastwards (in a direction corresponding to that of the Caucasus), while in the east they have an east and west trend on the north and south, a northerly trend on the eastern borders (**Sulaiman Mountains**), and a north-easterly trend on the north-east. There the lofty range of the **Hindu Kush** (higher than the Alps) separates some of the most elevated and secluded valleys in the world; those on the south-east draining to the Indus, those on the north-west, including the **Pamir Plateau**, to the desert region of Inner Asia. In the west the loftiest mountain range is that of the **Elburz**, parallel to the south shore of the Caspian Sea, and at no great distance from it.

---

[1] Born A.D. 571. The Mohammedans reckon time from the date of the flight of Mohammed from Mecca to Medina on the occasion of a rising against him in the former city. The date of the flight or *Hejra* (Hegira) was July 6, 622, which is hence the beginning of the Mohammedan era.

Cultivation everywhere demands irrigation, and is thus confined to the borders of the rivers and the bases of the mountains,[1] into the heart of which canals (**karezes**) are often pierced till water-bearing beds are reached. Wheat, rice, cotton, tobacco, and opium are grown. Fruit-trees are abundant (the peach a native of Western Irania). The date-palm[2] flourishes in the south-west and south, but is banished from the interior by the winter cold due to exposure to the north-east winds. Nomads inhabit the districts incapable of cultivation, rearing horses and camels, the two-humped camel now replacing the single-humped camel of Arabia.

The western half of Irania is under the despotic and crushing sway of the Shah of **Persia**, the eastern half divided between **Afghanistan** in the north and **Baluchistan** in the south. Of the former the emir of the Afghans is the nominal ruler throughout, but many of the tribes are virtually independent. The sparse population of the steppes and deserts of Baluchistan is subject to various chiefs, all, however, under the control of a British agent.

The **inhabitants** of Irania are mainly of Aryan race and language, and indeed the table-lands of this region seem to have been the centre from which that now widely extended stock dispersed. The **religion** is almost everywhere Mohammedan; but the Mohammedans of Persia and some of the tribes to the east belong to a sect regarded as heterodox by the rest of the Mohammedan world, the sect of the Shiites, who reject the Sunna or body of traditions supplementary to the Koran, held sacred by the other Mohammedans, who are hence called Sunnites.

---

[1] See Introd. p. 52.

[2] See p. 304.

In the desert (chiefly round Yezd) are a few adherents of Zoroastrianism.

The capital of Persia is **TEHERAN** (200), at the southern base of the Elburz Mountains. Even more populous is **TABRIZ** (800), in the north-west, on the Armenian plateau, the centre of the northern trade with Europe, a trade which, since the construction of the Transcaucasian railway, has been almost entirely in the hands of the Russians. At the sacred city of **Meshed** (a Shiite Mecca), in the north-east, the products of Europe are passed on to Afghanistan and Central Asia. Among the south-western mountains of Persia is **Ispahan**, the former capital, one of the residences of the caliphs[1] in the glorious days of the Arabs; and still farther south, in the original country of the ancient Persians, not far from the ruins of Persepolis, is the lovely town of **Shiraz**, celebrated for its rose-gardens, vineyards, and nightingales.[2] In the part of Persia to which these towns belong the trade is mainly in the hands of the nations of Western Europe (chiefly the English), and enters the country by the ports of **Bushire** and **Mohammera**, the former on the Persian Gulf, the latter at the head of the delta of the Shat-el-Arab.

Afghanistan and its principal towns derive their importance chiefly from the fact that they command the north-western passes leading into India. Of these the most important lie north and south of the Sulaiman Mountains; in the north the **Khaibar Pass**, on the route which mostly follows the Kabul river, commanded by the city of **Kabul**, and the **Kurrum Pass**, a little to the south; in the south the **Bolan** and **Nari** Passes, leading from Kandahar. A railway with a loop through each of these passes has been constructed for defensive purposes by the Government of India to the fortress of Quetta. The chief town of Western Afghanistan is **Herat**, on the issueless **Heri Rud**,[3] which fertilises a long valley running east and west, and forming the natural approach to Kabul. In Baluchistan, **Kelat**.

II. THE MONSOON COUNTRIES AND THEIR DEPENDENCIES.

1. INDIA.—This vast country, which is now entirely under British influence, occupies, if we include all the Himalayan States but exclude British Burma, an area of nearly one and a half million square miles, or more than sixteen times the size of Great Britain. Its population at the last census (1881) was upwards of 250 millions, two-fifths of whom were congregated in the valley of the Ganges in Bengal and the North-West Provinces, which comprise together only one-sixth of the area.

---

[1] See p. 252.

[2] Also celebrated at one time as the centre of Persian culture. Two of the most celebrated of Persian poets, Hafiz and Sâdi, were both natives of this town.

[3] Rud, Persian = river.

In shape the country is quadrangular, the mainland portion being bounded by two sides which slope north-eastwards and north-westwards to the north of Kashmir, where they meet in about latitude 36° N., and the peninsular portion by two sides which taper to a point in Cape Comorin, in about latitude 8°, N. India thus extends through twenty-eight degrees of latitude, entirely to the south of the most southerly latitude of Europe, and for fifteen and a half degrees within the torrid zone.

By its natural boundaries India is **more completely isolated than Italy**, the corresponding peninsula of Europe. On the north the Himalayas form a complete protection against foreign aggression, and the few lofty passes merely serve as a means of carrying on a scanty trade with the thinly populated regions beyond. On the north-east a succession of mountain ranges and gorges render it equally safe against attack in that quarter, and even prevent the existence of trade with the populous provinces of China, which lie immediately beyond. It is only on the north-western frontier accordingly that India has ever been open to invasion by land-routes, and even there the routes by which invading armies can enter are few and easy of defence. In the southern part of that frontier mountains and deserts render the peninsula almost unapproachable, and consequently the passes by which foreign armies have always found access to the plains of India lie more to the north. The Khaibar Pass is that which has been most frequently chosen.

Surface.—Within the frontier mountains lie **two extensive plains**, following the same general direction as the mountains, and watered by two great rivers with their tributaries, the basins of which form in several respects striking contrasts. The north-western plain is that of the **Indus**, a river which rises on the table-land of Tibet, and bursts through the whole Himalayan system, before it emerges on the arid expanse traversed by the greater part of its course, a river extremely difficult to navigate on account of its shifting shoals, and very destructive on account of the numerous changes of its bed. The north-east plain is that of the **Ganges**, a river which, like most of its tributaries, breaks through only the southern or loftier chain of the Himalayas, and which becomes a navigable stream as soon as it enters on the plain, this plain being one of the best watered, most fertile, and most densely populated in the world. Ultimately the Ganges unites with the **Brahmaputra** to form a delta as large as Ireland, on the outer margin of which new land is being formed with almost unparalleled rapidity.

South of the plains extends a table-land varying from 2,000 to upwards of 3,000 feet in height, occupying the greater part of the peninsula proper. Its northern boundary roughly corresponds in direction with the frontier mountains of India, but on the north-west the table-land is broken in upon by a tract of low-lands stretching across the neck of the minor peninsula of Gujerat, and connecting the lower valley of the Narbada with the plains of the Indus. The south-west and south-east boundaries of the plateau are much better defined. The south-west edge of the plateau, seen from the narrow strip of flat coast to which it descends with remarkable abruptness, appears like a mountain range, and is known as the **Western Ghats**,[1] from the passes by which it is ascended. About the southern extremity of the Ghats rises the lofty group of mountains called the **Nilgiri Hills**, which terminate the plateau, for immediately to the south occurs a remarkable depression called the **Palghat Gap** (about twenty-five miles wide and only about 1,000 feet in height), which affords an easy route for the railway from Beypur near Calicut to Madras, and separates the table-land from the **Cardamom Mountains**, which stretch southwards to Cape Comorin.

On the south-east the table-land is bordered by the **Eastern Ghats**, which are lower than the Western, and leave at most places wider tracts of lowland between the elevated interior and the coast. On both sides the **coast** is generally surf-beaten and difficult of access.

The principal **rivers** by which the table-land is traversed are the **Narbada** and **Tápti**, which flow into the Gulf of Cambay in the north-west, and the **Mahánadi, Godávari,** and **Krishna,** which enter the Bay of Bengal. They are all more or less impeded in their navigation by rocky rapids, but the Narbada, Mahánadi, and Godávari are navigable in the lower part of their course.

---

[1] Ghat is an Indian word for 'a stair,' especially a broad stair leading down to a river such as is common in India; hence 'a mountain-pass

A large part of the table-land is covered with a rich **black soil** as important to Southern India as the black soil of Europe is to Southern Russia. It is said to have produced crops for a thousand years without manure, and is often called **cotton soil** from its being so well adapted for the growth of cotton.

Extending over so vast an area, and embracing tracts so diverse in elevation, India necessarily has a very varied **climate**, but everywhere the climate is greatly affected by the **monsoons.**[1] It is upon these that the rainfall depends, but yet the rains occur in different parts of the country at different times.

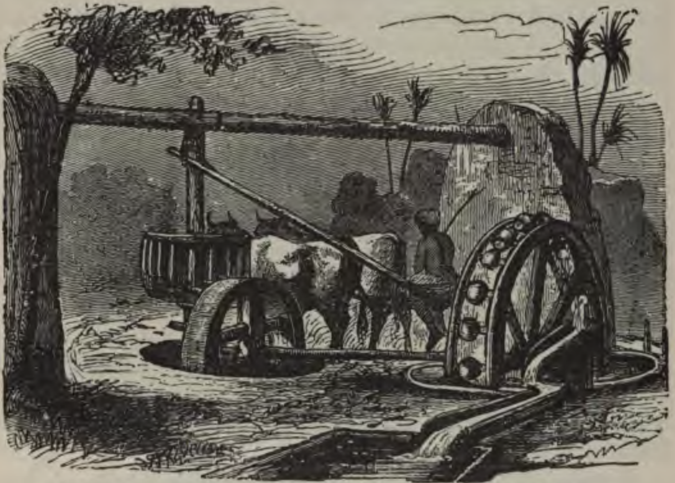


FIG. 46.—A PERSIAN WATER-WHEEL AS USED IN INDIA FOR IRRIGATION. Similar water-wheels are in use throughout the Mediterranean region.

The parts which invariably receive abundant rains from the south-west monsoon are the south-western edge of the southern plateau, the hills to the north-east of the Bay of Bengal, and the valley of the Ganges, up which this monsoon is diverted as a south-east wind. Hence in these parts the rainy season is the summer, and above all the third quarter of the year; and in good seasons rain falls during the same period over three-fourths of India. The land monsoon brings rain to different districts at two different periods—to the eastern half of the peninsula as a north-east wind in the first quarter of the year. A small area in the south, where the Palghat Gap affords access to the south-west monsoon, receives rain both from it and from the north-east monsoon.

---

[1] See Introd. pp. 42, 51.

The variations in the extent and abundance of the rains are the chief cause of the **famines** from which different portions of India suffer from time to time. Throughout a large part of the country it is uncertain whether the rainfall of the year will be sufficient to produce a crop at all, and hence the necessity for **irrigation**. About one-tenth of the cultivated area in India is supplied with water by this means; in the north canals being led from the rivers, while in the south there are numerous tanks or reservoirs in which water is stored.

With regard to its chief **agricultural products**, India may be divided into three regions: (1) the colder and drier parts of the north, form the **wheat region** (North-West Provinces and Punjab); (2) the moist warm plains from Bengal to Krishna form the **rice country**; (3) the drier parts of tropical India, including all the black soil area, form the **region of millets**.[1] Wheat, however, extends also into this region, and the finest kind is grown on the black soil of the valley of the Narbada. In general the **growth of wheat in India for export** is becoming every year of more importance, and since the beginning of the present decade India has come next after the United States in the amount of wheat it supplies to this country. Besides these **food-grains** the agriculture of India produces **cotton** (chiefly on the black soil), linseed and other **oil-seeds, jute**[2] in Bengal, **opium** and **indigo** in the same province, **tea** at various places along the slopes of the Himalayas (particularly Assam and Darjiling), coffee (in the hill districts of Southern India), sugar-cane, tobacco, numerous spices and other less important products.

Forests are found chiefly on the mountain slopes. A broad strip of forest known as the **Tarai** stretches, however, along the base of the Himalayas, forming with its underwood a dense jungle, the haunt of wild beasts and a source of poisonous exhalations; and a still more deadly jungle occupies the marshy tract called the **Sandarbans**, at the mouth of the delta of the Ganges. Altogether the forests in the British provinces are estimated to cover one-twelfth of the total area. Most of these are now under the management of the Government.

The **principal timber trees** belonging to them are teak and

---

[1] Both the durrah of Arabia and Africa, here called *joári*, and another cereal called in India *bajra*.

[2] A strong vegetable fibre used in making sacking.

sal, both remarkable for the hardness of their wood, that of the teak tree being highly valued as material for ship-building. Among the other trees of India may be mentioned the **mulberry**, on which large numbers of silkworms are reared, particularly in Bengal and the Punjab; the **coco-nut palm**, which fringes and adorns the coasts of the peninsula; and the **date-palm**, which is grown on irrigated land in the valley of the Indus as high as Pesháwar and Amritsar.

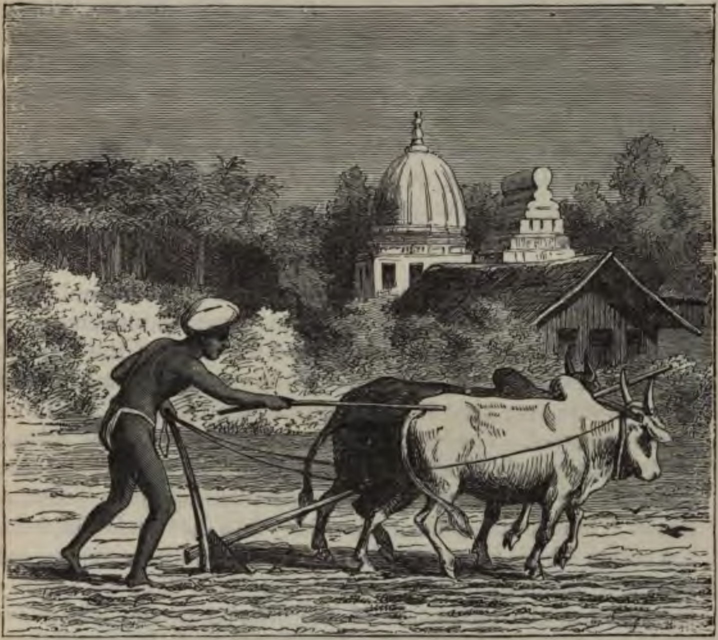


FIG. 47.—PLOUGHING WITH ZEBUS, OR HUMPED OXEN, A BREED VERY ABUNDANT IN INDIA.

Among the more noteworthy **animals** of India are the tiger and other beasts of prey, the elephant, and numerous serpents and monkeys. Under British rule a great deal has been done towards extirpating beasts of prey and venomous serpents, but even yet thousands of people in India are killed every year by wild animals, chiefly snakes. Monkeys often commit great ravages in the cultivated fields, and some of these are preserved from destruction through being held sacred. Elephants are of great value as beasts of burden.

The **mineral wealth** of India is far from abundant. There are many **coal-fields**, but the coal is generally of poor quality, and the only district in which many mines have been opened is round Raniganj, 120 miles north-west of Calcutta, where coal was worked more than a hundred years ago.

The **roads** of the country till the middle of the present century were little better than mere tracks, fit only for rude ox-waggons, and human carriers and pack-bullocks were the principal agents of commerce except where there are navigable rivers. So favoured, however, is Bengal in the possession of this means of communication that in some parts of the province almost every cottage has a navigable stream at its door, and the Bengalese farmer keeps his boat as regularly as the English farmer his gig. All the principal **towns** in India are now, however, connected by railways.

With the increase in the means of internal communication the foreign **commerce** of the country has advanced with enormous strides under British rule. Since 1840 the value of the imports has increased ninefold and that of the exports sevenfold, and now the value per head is much greater than that of any other Asiatic country. The **chief articles of export** are **raw cotton**, **grain** (particularly wheat and rice), **opium**, indigo, jute, and tea; while among the **imports** by far the most important item is **cotton-goods.** The external commerce is chiefly with the United Kingdom, the cotton fabrics of which have now almost entirely superseded the hand-woven goods of the natives, and with these have nearly extinguished the production of the delicate muslin fabrics for which some parts of India have long been noted (Dacca muslin).

Native manufactures now survive chiefly in the Punjab, but cotton factories on a European model have been introduced in the territory under the Governor of Bombay, and jute factories in Bengal.

The **people** of India may be roughly divided into two great sections, those of the northern plains, and those of the hills and the peninsula. The former are mainly an **Aryan race**, speaking a variety of languages allied to the **Sanskrit**, and cannot be regarded as the oldest inhabitants of the country. They immigrated by the north-western passes many centuries before the beginning of the Christian era, and seem to have driven the earlier inhabitants to the hills. The latter are now chiefly represented by the **Dravida peoples** of the peninsula proper, a race darker in colour and not as well formed as that of the plains, and speaking languages wholly distinct (**Tamil** and **Telugu**).

As regards **religion**, about three-fourths of the people are adherents of **Hinduism**. Next to Hinduism, **Mohammedanism** is the religion most largely professed, its adherents numbering about one-fifth of the entire population. The number of Christians does not yet reach two millions.

The Mohammedanism of India is a result of several successive conquests by Mohammedan powers both in the north and south. The last of these conquests which left important permanent results was that of Baber, who invaded India in 1525 and founded the Mogul Empire, which continued to exist at least in name till 1857. Shortly before the invasion of Baber, the Portuguese had acquired a footing in the peninsula, and for about a hundred years this people retained in their own hands almost all the trade of the East. They were followed by Dutch, English, Danes, and French, but about the middle of last century the English influence (represented by the East India Company), through victories over the French and natives, became paramount, and now England rules directly over considerably more than half of the entire country.

Since 1858 the **government** of British India has been vested in the Crown, which appoints a viceroy or governor-general for the whole country, and a council of fifteen members who assist in legislation. The revenue is mainly derived from a land-tax, the sale of opium (which is a Government monopoly and an important export to China), and a tax on salt.

The principal **native states** are Haidarabad, Mysore, Baroda, and the states of the Rajputána and Central India Agencies.

There are in addition three native states in the Himalayas, Kashmir, Nepal, and Bhutan, which are entirely independent, except that in Kashmir the ruler is bound to consult the British authorities in case of disputes.

The provinces of British India are placed under the administration of officials bearing various titles. The native states are subject to their own rulers, who are, however, bound to allegiance to the British authorities, and have a British official stationed at their court.

The provinces are the following :—

	Area in Thousands of Square Miles.[1]	Population in Thousands (1891).	Density per Square Mile.
Under the Governor-General :			
Ajmir and Mhairwára . . .	2·7	542	200
Berar	17·7	2,897	164
Coorg	1·5	173	108
Andaman and Nicobar Islands[2] .	·8	15	—
Under Governors :			
Presidency[3] of Madras . .	143	35,589	249
Presidency of Bombay (including Sind and Aden) . . .	125	18,827	151
Under Lieutenant-Governors :			
Bengal.	150	70,909	473
North-West Provinces and Oudh	106	46,923	443
Punjab	111	20,803	187
Under Chief Commissioners :			
Assam	46	5,423	117
Burma.	156	7,554	48
Central Provinces . . .	84	10,775	128

The total population of British India, including Burma, is about 220,000,000, of the native states about 64,000,000. The average density of the population throughout the country is under 200 to the square mile, but many parts are greatly over-peopled, and are inhabited by swarms of human beings living in a state of the most abject poverty. Nevertheless the people of India, unlike the Chinese, exhibit great unwillingness to emigrate. A small number leave the country every year to work as coolies on sugar and other plantations in tropical colonies, or colonies near the tropics. About half a million Indian coolies are now estimated to be living in various colonies, chiefly British.

Provinces and Towns.—1. Bengal, the Province of the Lower Ganges, but including also the delta of the Mahanadi (Orissa).

CALCUTTA (with suburbs, 840), the seat of the supreme government, on the Húgli, a branch of the Ganges, liable like all the others to be choked by silt, which has led to the decay of several predecessors of Calcutta. The Húgli is now kept open by engineering works for ships of the largest size. The northern part of the town is occupied by natives, the southern by Europeans. **PATNA**, higher up on the main stream of the Ganges, centre of the opium trade, and the scene of great Mohammedan festivals. **Gaya**, farther south, memorable as the birthplace of Gautama or Buddha, founder of the Buddhist religion.

---

[1] For the sake of comparison it may be mentioned that Great Britain has in round numbers an area of 90,000 square miles, the county of Durham about 1,000 square miles.

[2] These two groups of islands in the Bay of Bengal have each a convict station on one of their islands, and the population here given is chiefly composed of convicts, and does not include aborigines.

[3] India was formerly divided under three governors called presidents, but the former presidency of Bengal has now been divided up among various officials.

2. **North-West Provinces, including Oudh**, the latter one of the most fertile districts in the world, with a dense but now stationary population. **LUCKNOW** (275), formerly the capital of the kingdom of Oudh, between the Ganges and its tributary, the Goghra. On the Ganges itself **BENARES** (220), the sacred city of the Hindus, and seat of a Sanskrit college. **ALLAHABAD**, at the junction of the Ganges and the Jumna, and now at that of the railways to Calcutta and Bombay, hence a great and rapidly rising centre of trade; also seat of a university, founded by the British. **CAWNPORE**, memorable as the scene of a massacre of the English by revolted sepoys in 1857. On the Jumna, **AGRA**, once the residence of the Great Mogul,[1] celebrated for its great mausoleum, called the Taj Mahal. South of Agra, in the native state known as Sindhia's Dominion, is the town of **Gwalior**, with a magnificent fortress which was kept in the hands of the British from 1858 to 1885.

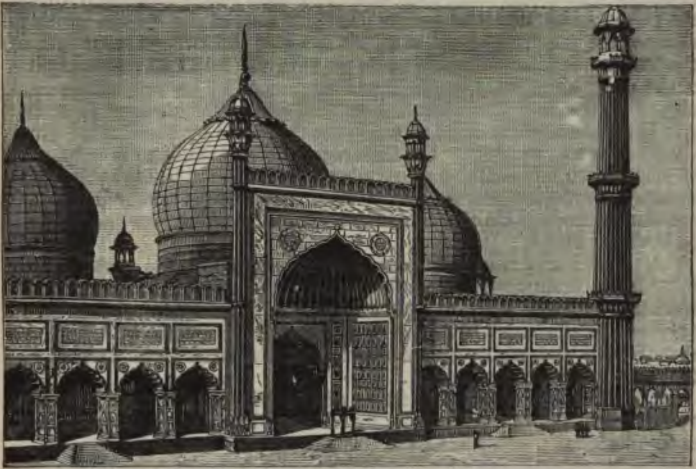


FIG. 48.—THE JAMA MASJID, THE PRINCIPAL MOSQUE AT DELHI.

3. **Punjab**, 'the land of the five rivers,' so called from the five rivers which here unite to contribute their waters to the Indus, a land divided by these streams into **duabs**, or districts lying between two rivers. Among the inhabitants are numerous **Sikhs**, a fanatical and warlike religious sect. On the Jumna, **DELHI**, also one of the former seats of the Great Mogul, situated at the edge of the more or less desert country intervening between the Jumna and the passes of the north-west. In the richest of the duabs, between the Ravi and the Bias, is **Lahore**, from the earliest period a meeting-place of trade routes, and

---

[1] The name given to the ruler of the Mogul Empire.

now a great railway centre. To the east, **AMRITSAR**, with manufactures of Cashmere shawls, &c. In the extreme north-west, **Peshâwar**, important as a defensive station from the fact of its lying opposite the mouth of the Khaibar Pass. In the north-east, among the Himalayas, **Simla**, at the height of upwards of 7,000 feet above sea-level, an important sanitary hill-station, and residence of the Government of India during the hot season.

4. **Rajputána,** the collective name for a number of native states, chiefly occupying desert plains in the lower valley of the Indus, but containing two large and fine towns, **JAIPUR** and **Jodpur**, in fertile tracts watered by streams descending from the Aravalli Hills.

5. **Bombay and Sind.**—**Karáchi**,[1] in Sind, at the extremity of the north-west coast of India, a seaport rapidly rising in importance on account of its export of Punjab wheat. Between Sind and the rest of the Bombay presidency lies the district of **Cutch**, with the **Run of Cutch** (a sandy waste, encrusted here and there with salt, and flooded during the wet season), and the peninsula of **Gujerat**, at the root of which is situated the important town of **AHMEDABAD**. **SURAT**, at the mouth of the Tapti, has a considerable trade in cotton. **BOMBAY** (800), capital of the presidency, on a small island connected by an artificial causeway with the mainland, has the largest and safest harbour in India, and is the rival of Calcutta as a seaport (acquired by the English from the Portuguese in 1661). On the neighbouring islands of Salsette and Elephanta are fine remains of cave-temples. Among the inhabitants of Bombay are 50,000 Parsis (see p. 262), who occupy a very influential position in trade. On the table-land behind Bombay, on the railway to Madras, **PUNA**.

6. **Central Provinces and Berar,** occupying the north of the table-land; comparatively thinly populated, except in the valley of the Narbada. **NAGPUR**, the most important town in the Central Provinces, once one of the chief towns of the Mahratta kingdom, which, in the seventeenth and eighteenth centuries, embraced a large part of the table-land of Southern India.

7. **Haidarabad**, or the Dominion of the Nizam, the most extensive native state in the table-land, with a fertile soil producing cotton, wheat, and oil-seeds. **HAIDARABAD** (390) near the centre of the dominion is the capital, and six miles to the west is **Golconda**, with the famous tombs of the kings—namely, those who reigned over this territory in the sixteenth and seventeenth centuries; once noted also for its diamond beds (now exhausted).

8. **Mysore,** a large native state farther south, producing grain, sugar, and coffee. Chief towns, **Mysore** and **BANGALORE**.

9. **Madras Presidency.**—On the west or Malabar coast, **Calicut**, at one time the most important place on the entire west coast of the peninsula. On the east or Coromandel coast, **MADRAS** (450), the third largest town in India, and the third seaport in rank, notwithstanding the fact that it is situated on a surf-beaten shore, difficult of access. It is now provided with an artificial harbour formed by two long piers built out to sea.

To this presidency belong the **Laccadive** (coral[2]) Islands, off the west coast.

---

[1] Often spelled *Kurrachee*.

[2] See Introd. p. 33 *n*.

10. British Burma. See Indo-China.

11. Kashmir is a mountainous state in the extreme north-west, having in the centre a small high-lying valley, with a fine equable climate, producing corn, wine, and silk, besides roses and other flowers innumerable. The chief town in this valley is **Srinagar**, on the Jhelum, a tributary of the Indus.

NEPAL, the native country of the warlike Gurkas, has for its capital **Katmandu**, important as the key of the chief passes across the Himalayas.

BHUTAN, further east, now confined to the most mountainous parts of its former area, the duars, or hill country, further south, having been ceded to Britain, in return for which a small subsidy is paid to the ruler of the state.

2. CEYLON, an island about half the size of England, lying to the south-east of India, from which it is separated by a strait so shallow as to have only two or three channels navigable for small vessels. It consists of a belt of low country surrounding a core of mountains. The island is a British crown colony.

Coffee was long without a rival among its products for export, but of late has been giving place to **tea**, and since 1884 Ceylon has been the chief source of the **Peruvian bark** (p. 349) imported into Britain. **Pearls** are obtained in the Gulf of Manaar. The native inhabitants are mainly a gentle race of Buddhists; but Hindu immigrants, speaking Tamil, are numerous in the north. The **Maldive** (coral) **Islands**, lying to the south-west, are tributary. Capital of the colony, **Colombo**, on the west coast.

3. INDO-CHINA is the name generally given to the peninsula between India and China.[1] It lies almost entirely within the torrid zone. Its area is about 800,000 square miles, and its population, estimated at about 36,000,000, has a density of only about forty-five to the square mile, much smaller accordingly than either of the other great monsoon countries in the east and west—a consequence of the highly mountainous surface, and the density of the tropical forests.

The **mountains** generally trend north and south parallel to the chief rivers, which they confine in many places to narrow gorges, receding at other parts to form wide and fertile valleys. The chief seats of population are the vast **rice-fields** of the river deltas, all of which are liable to be flooded during the summer rains, on which account the houses are frequently built on stakes to raise them above the flood-level, sometimes on rafts moored on the rivers themselves.

---

[1] Also known as the *Eastern Peninsula* and *Further India*.

The **principal rivers** are (1 and 2), in the west the **Irawadi** and the **Salwin**, the former with **RANGOON** on its wide delta, the latter with **Maulmain**[1] at its mouth; (3) the **Menam**, with **BANGKOK** (500) at its mouth, flowing into the Gulf of Siam; (4) the **Mekong**, flowing into the Chinese Sea, and forming a large delta, on which stands the town of **Saigon**; and (5) the **Song-koi**,[2] or Red River, flowing south-eastwards into the Gulf of Tongking, with **Hanoi** or Kesho near the head of its delta. **Numerous rapids impede the navigation** of the rivers, and only the Irawadi is capable of being ascended by steamers for any great distance. On that river British steamers ascend to **Bhamo**, close to the Chinese frontier.

The **inhabitants** of the peninsula are mainly of Mongolic race, and speak languages allied to the Chinese. In religion they are **Buddhists**, and Buddhist pagodas are among the most conspicuous ornaments of the towns. On the **Malay Peninsula**, which stretches like a finger southwards almost to the equator, the inhabitants are Mohammedan Malays, but on all the coasts, and especially in the east and south, Chinese immigrants and settlers form the hardest-working section of the population.

Politically the peninsula is divided among various powers. A strip on the north-west, extending from Bengal to the root of the Malay Peninsula (latitude 10°), till recently known as **British Burma**, is under the government of India. It has an area about equal to that of Great Britain, and is divided into the provinces of **Aracan, Pegu, Irawadi**, and **Tenasserim**. It is specially valuable for its **rice and teak**.

The population of these provinces, being small relatively to their resources, has been growing under British rule with extraordinary rapidity. Between the censuses of 1871 and 1881 it increased by thirty-seven per cent., the density from thirty-two to forty-three to the square mile. British Burma is the only part of Indo-China in which **railways** have yet been introduced, two starting from Rangoon, one for Prome, on the Irawadi, the other proceeding northwards by Pegu. Proposals are now being made for the construction of a railway from the Gulf of Siam to the Chinese frontier, with the view of extending commerce with the rich provinces of south-western China.

On January 1, 1886, the former kingdom of Burma, with **MANDALAY**, on the Irawadi, for its capital, was added to the British dominions, so that Britain has now the command of the whole course of the Irawadi as far as Bhamo.

On the east side of the straits of Malacca a considerable portion of the **Malay Peninsula** is in British possession or under British protection (chief town **Malacca**); and on a small island at the extremity of the peninsula is the British seaport of **SINGAPORE**, lying in the route from India to Australia, as well as Eastern Asia, and hence the most important seat of marine commerce in Indo-China, although in the early part of the present century it contained only a handful of people.[1] The inhabitants are chiefly Chinese.

---

[1] Also spelled *Moulmein*.

[2] Also called the *Song-ka*.

The lower and middle parts of the basin of the Menam, and the middle part of the basin of the Mekong, form together the **Kingdom of Siam.** The lower part of the basin of the Mekong above the delta is the former kingdom of **Cambodia**, which, after existing for some time as a feeble state under French protection, has now been taken under direct French rule. At one time it was the seat of a highly developed civilisation, of which there are some magnificent remains, the most remarkable being the temple known as Angkor Wat. The delta itself, forming **French Cochin China**, is under French rule, and France also possesses the delta of the Song-koi (**Tongking**), and claims a protectorate over the **Empire of Anam**, in the east of Indo-China (capital **Hue**, on the coast). In the interior are numerous independent tribes, the chief of which are those of the **Shan States.**

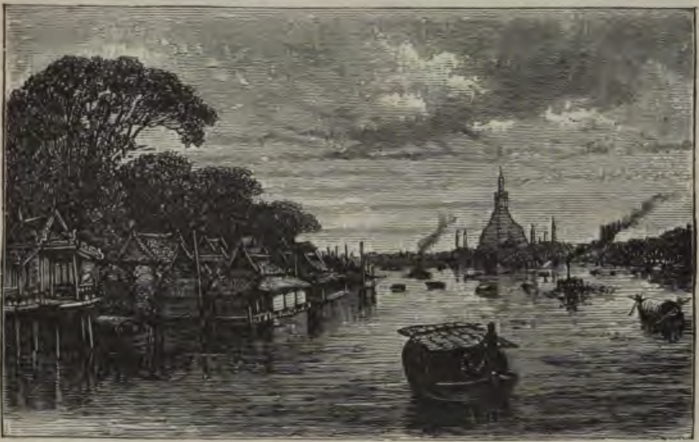


FIG. 49.—VIEW OF BANGKOK, SHOWING FLOATING HOUSES, AND IN THE DISTANCE A BUDDHIST PAGODA. (By the kind permission of Mr. Murray.)

4. THE EASTERN OR MALAY ARCHIPELAGO.—This large assemblage of islands in the south-east of Asia extends over an area nearly as great as that of Europe, although the land surface is only about one-fifth of the area of that continent. It consists of islands both large and small, Borneo, the largest, being more than three times, and Sumatra, the next in size, nearly twice as large as Great Britain. A line of active volcanoes (about fifty in all) passes round the outside of the group, just touching Celebes, in the north-east.

---

[1] The island was bought by the British in 1819 on the suggestion of Sir Stamford Raffles, who perceived the peculiar advantages of its situation for Eastern commerce.

The whole group lies within the tropics, and all, except the Philippines, between 10° north and 10° south. Favoured by the monsoon rains, the vegetation is almost everywhere as luxuriant as the tropics can show. Dense forests cover the slopes of the mountains, which occupy the greater part of the surface. Coconuts, bananas, and the pith of the **sago palm** supply food with too much ease to demand much energy on the part of the people. From the sago palm ten days' labour suffices to obtain food that will last a man for an entire year. Other wants are supplied with equal ease. Of clothing little is needed, and for house-building, bridge-building, and all kinds of domestic utensils the **bamboo** furnishes abundance of material, which can be worked with the greatest facility. Hence the native population seldom exhibits any energy except under foreign influence.

Most of the original **inhabitants** are Malays, a brown-complexioned race, with smooth straight hair, rather silent in disposition and subdued in manners, expert in fishing and in the management of small slim boats, with which they make long voyages from island to island. At one time Buddhists, they attained in Java, under Buddhist influences, a high degree of civilisation, of which there are relics in the form of a Malay literature and splendid buildings,[1] rivalling those of Cambodia. Afterwards the Arabs gained them over to Mohammedanism, and that religion is still professed on most of the islands, on some of which the Arabs, though few in number, hold a very influential position. After the discovery of the sea-way to India at the close of the fifteenth century, the Arabs were followed by Portuguese and Dutch, the latter of whom now claim possession of most of the archipelago, except the Philippine Islands, which, together with the adjacent small islands of the Sulu Archipelago, belonged to Spain till 1898, but were then taken possession of by the United States.

The **Dutch possessions** consist of the **Great Sunda Islands**, in the west, the **Lesser Sunda Islands**, stretching eastwards from **Java**, and the **Moluccas**, between Celebes and New Guinea.

Among the Great Sunda Islands **Java** is that in which Dutch influence has been most exerted, and this island is consequently the most productive and most densely peopled of all large tropical islands.[1] Fields of **rice** and **sugar cane** occupy the lower levels along with

---

[1] The most remarkable is the temple of Boro Buddor, near the middle of the island.

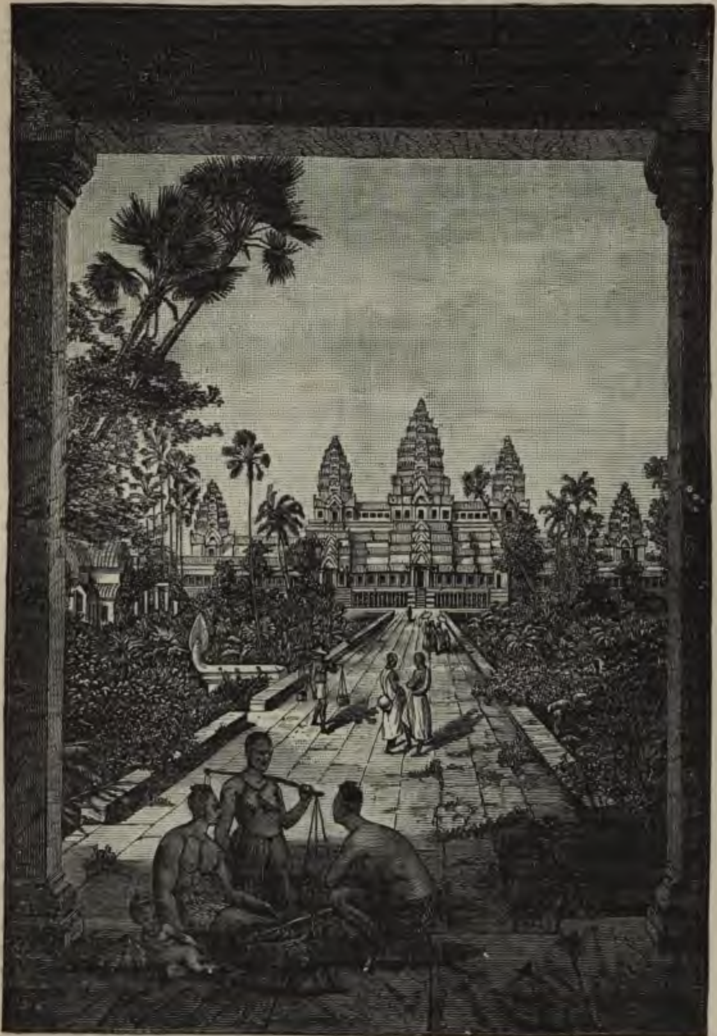


FIG. 50.—THE TEMPLE OF ANGKOR WAT, CAMBODIA.

[1] See Introd. p. 59.

tobacco, higher up follows coffee, and then tea and cinchona.[1] Some of these products are grown in plantations belonging to the government, others on native plantations, the owners of which are bound to sell their crops to the Dutch Government at a low fixed price, so that the revenue thus gained from Java suffices to make up all the deficiencies in the other Dutch islands. Under this system the population has grown from 6,000,000 in 1825 to nearly 20,000,000, and the density now exceeds that of England. The principal towns are on the north coast—**BATAVIA** in the west, **SURABAYA**[2] in the east.

On **Sumatra** the natives are to a large extent independent, living in fortified villages called kampongs. The smaller island of **Banca**, adjoining on the east, is rich in tin. Of **Borneo** only the south-east is claimed by the Dutch, and even this part is chiefly left to the natives. Off the north-west coast is the small island of **Labuan**, belonging to Britain. It produces coal. The territory of the **British North Borneo Company**, in the north of the island, the native state of **Brunei**, adjoining it on the south-west, and **Sarawak**, a state subject to a rajah of British family, are now all under British protection. The very irregular island of **Celebes** has coffee and other plantations, under Dutch supervision, in the north-eastern peninsula (Menado), but in most parts the natives are not interfered with. The coffee is said to excel that of Java.

Of the **Lesser Sunda Islands** the largest is Timor, the eastern half forming the last relic of Portuguese rule in the archipelago.

The **Moluccas**, also called the **Spice Islands**, from the nature of their principal products, grow cloves, nutmegs, cinnamon, and other spices, and are very carefully managed by the Dutch.

Spanish rule in the **Philippines** resulted in the nominal conversion of the inhabitants to Christianity, but did little for industry and commerce.

Only one island, **Luzon**, has a tolerably dense population (more than 100 to the square mile). Here the chief products are tobacco, sugar, and a strong fibre known as **manilla hemp**. **MANILLA** (200), on a fine bay on the west coast, is the chief town, and is the largest in the whole archipelago. It has frequently suffered from earthquakes and typhoons.[3]

5. CHINA occupies the east of Asia, from the latitude of Southern France to five degrees beyond the tropic of Cancer (in the island of Hainan). Shut off from the rest of Asia on the north and west by scarcely habitable table-lands, and in the south-west from the fertile plains of India by the mountain barriers of Indo-China, it is by nature one of the most isolated countries in the world, and, being at the same time blessed with a soil of extraordinary fertility and a genial climate, it supports a dense population, which has for the most part remained separate from the rest of the world, and developed at an early period a high civilisation, with manners and ideas quite peculiar.

---

[1] See p. 348 n. 1.

[2] Spelled in accordance with the Rules, p. 9. The Dutch spelling is *Soerabaja*, which has the same sound.

[3] See Introd. p. 41.

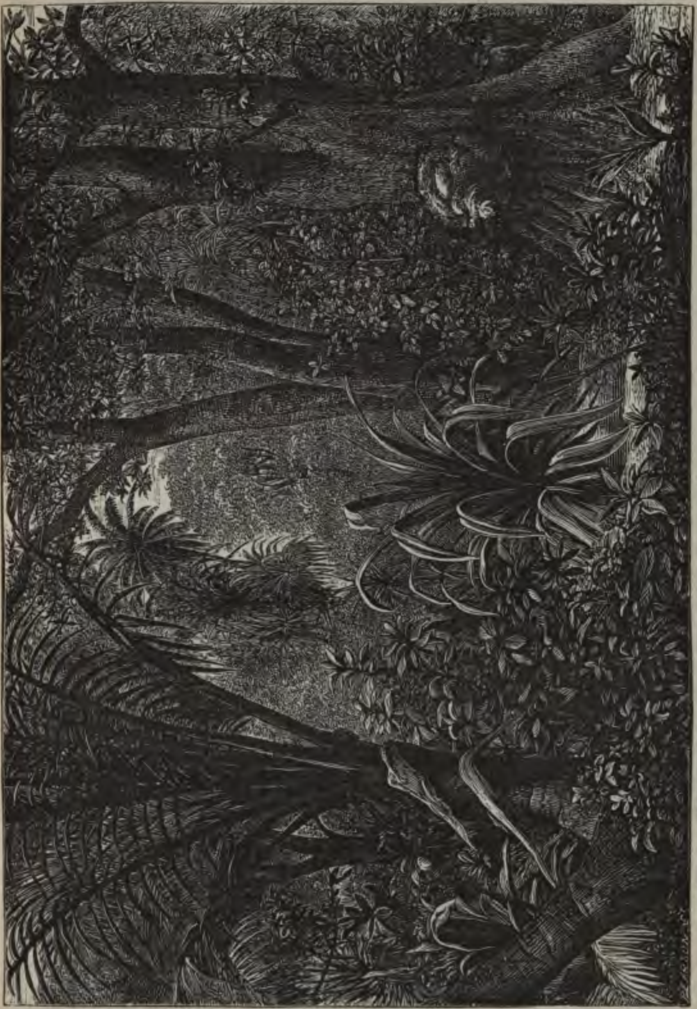

Coco-nut palm.
Young coco-nut palm.
Young screw-pine.
Bread-fruit tree.

Fig. 51.—Scene in a Tropical Forest (Caroline Islands).

Its total area, even including the parts of Central Asia and Manchuria, now under direct Chinese government, is less than half that of Europe, but the population, according to the most likely estimate that can be formed, is equal to, if it does not exceed, that of our continent

The country is, for the most part, elevated, and even mountainous, though there are plains and lowlands of great extent.

The great plain, or lowland region, is that which extends in the east from Peking to the Yang-tse-kiang, interrupted only by the mountainous peninsula of Shan-tung.[1] Of the mountains by far the most important, as a physical feature, are the **Fu-niu-shan Mountains**, forming the eastern continuation of the Kuen-lun, and running from west to east, about the parallel of 34° N., more than half across the country: this range separates two regions in the north and south, presenting a marked contrast to one another.

1. As regards physical features in the north the valleys and hollows between the mountains are filled with a yellow[2] earthy deposit of great fertility, known as lœss, which rounds off the outlines of the surface like snow-fields in high mountains, though the lœss itself, sometimes thousands of feet in depth, is apt to weather away in such a manner as to form terraced perpendicular precipices.[3] To the south this lœss is generally absent, and the mountains, frequently separated by chasmy hollows, stand out in all their grandeur. In the north again the rivers are not easily navigable, partly from their impetuosity, and partly from their being filled with shifting shoals derived from the soft lœss. The great river of the north is the rapid **Hoang-ho**, or Yellow River, which now flows in the end north-eastwards into the Gulf of Pechili, on the north side of the mountainous peninsula of **Shan-tung**, but till about the year 1852 continued its eastern course to the Yellow Sea, south of that peninsula. To the south is the **Yang-tse-kiang**, one of the finest navigable rivers in the world[4] (hence having on its banks many of the largest towns in China), while its tributaries on the right bank form in many cases admirable means of communication between it and the extreme south.

---

[1] Shan-tung = Eastern Mountains, as distinguished from Shan-si = Western Mountains.

[2] Hence the names Hoang-ho = Yellow River, Hoang-hai = Yellow Sea, due to the colouring derived from this deposit.

[3] See cut, p. 295. This mode of weathering is probably due to the presence in the lœss of innumerable minute perpendicular channels lined with calcareous deposits. In Northern China millions of human beings live in caves hollowed out in the sides of these precipices. The lœss is believed to have been blown into the hollows which it fills from the highlands of Central Asia. See p. 25.

[4] The continuous navigability of the Yang-tse-kiang for steamers extends as high as Ichang, in about lon. 111½° E., but is there stopped by dangerous rapids.

2. As regards **communication**, in the north are numerous roads, and horses, mules, asses, and the two-humped camel are abundant as beasts of burden, while in the south human carriers are mostly employed where boats and ships are not available.

3. As regards **products**, the north is the land of **wheat, millet, cotton**, and **pod-fruits**, the south of **rice, tea, silk, sugar**, and **opium** (the last chiefly in the south-west); and while in the north agriculture may be pursued on the fertile lœss as high as 8,000 feet above sea-level, in the south it is mostly confined to the plains and valleys, and to artificial terraces[1] cut out on the lower slopes of the mountains. Only in the western parts of the south, the province of **Se-chwan**, where a fertile red soil takes the place of

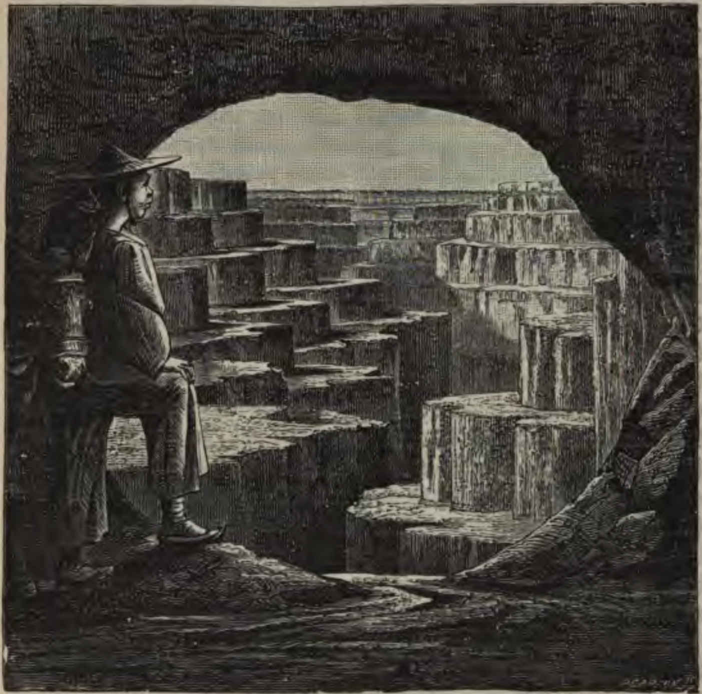


FIG. 52.—VIEW AMONG THE LŒSS TERRACES OF NORTHERN CHINA.
(By the kind permission of Mr. Dietrich Reimer.)

---

[1] See Introd. p. 37 (3) and comp. p. 300.

the yellow lœss, is agriculture pursued to a great height up the mountain sides.

4. As regards **climate**, there is in the north only an alternation between a warm, cloudy, and rainy summer, and a long winter with clear skies and icy north winds; while in the south, on the other hand, there is a more gradual succession of the seasons.

People.—The original seats of the Chinese are unknown, but it is certain that this people immigrated from the north, and it was in the northern part of China that the emperor, an absolute monarch, acquired the title of 'Hoang-ti,' meaning 'Lord of the Yellow' (earth). The Chinese are the chief representatives of the Mongolian type of the human race, but though they make up the great bulk of the population in China itself, and, being by far the most industrious and energetic race in Asia, are rapidly overflowing into all the neighbouring countries and islands in the south-east, and are even spreading beyond the limits of the continent, they have for the last 250 years been subject to a Manchu dynasty, which invaded China from the north-east.[1] In **religion** they are nominally **Buddhists**, but all religions that have taken a strong hold on the Chinese have been reduced by them to little more than ceremonial observances, and the worship to which the people most stedfastly cling is the worship of their forefathers, tablets in honour of whom are preserved in every Chinese household. The system of Confucius, an ancient Chinese sage whose descendants are still held in great reverence by the Chinese, can scarcely be called a religion at all, consisting as it does merely of a code of duties. It is the system adhered to by the learned classes, and all the higher officials are obliged at stated times to perform certain rites connected with it.

Education is prevented from being general by the vast number of characters used in writing in Chinese, but there are nevertheless few countries in which more direct encouragement is given to learning. All government offices are the reward of success in examinations.

The Chinese in their own country have maintained their isolation in a large measure down to the present day. From a remote period there has been a trade with the West by land, chiefly in silk. Intercourse with Europe by sea began in the early part of the sixteenth century, but was confined to Canton till within the last half century, since when several ports have been opened by treaty (hence treaty ports) to European and American commerce. The **chief articles of export** are now **silk** and **tea**, and the **chief import**, **opium**, from India; next to which come various **manufactured goods**.

---

[1] It was from their Manchu conquerors that the Chinese adopted the practice of wearing their hair in a 'pig-tail,' that is, in a single long plait hanging down behind.

Even yet, however, the whole foreign trade of China is only about one-fortieth of that of Europe; and the long-continued aversion of the Chinese Government to the construction of railways was an obstacle to its development. The construction of a network of railways has often been proposed, and would have all the more importance, since China is known to possess enormous **coalfields**—coalfields the united extent of which is estimated to be twenty times as great as that of the coalfields of Europe. The **gold**, **copper**, and other minerals of the province of **Yün-nan** in the extreme south-west are among the products which it is hoped to make accessible to European commerce by railways. Telegraphs are already extending in China with remarkable rapidity; and the attitude of the Government towards railways has at last been changed.

The large **towns** of China have been known by repute in Europe since the time of the Venetian traveller Marco Polo (end of the thirteenth century), but his accounts were then ridiculed as exaggerated. Even according to the best estimates of the present day, however, China can boast of several towns containing more than a million inhabitants.

PEKING, the seat of government, stands in a densely populated plain in the north-east (prov. Pechili), but in one of the dreariest parts of it. Its population is variously estimated at from 500,000 to upwards of a million.[1] Its port is **TIENTSIN** (1000), on the Pei-ho, a treaty port accessible to Chinese junks,[2] but much more important as the northern terminus of the Grand Canal, a canal 700 miles in length, which forms the great channel of communication between north and south,[3] as far as **HANGCHAU**,[4] at the head of the inlet or gulf of the same name. Of the towns on the Yang-tse-kiang the largest is **HANKAU**[4] (700), at which place, though lying in the centre of the country, sea-going ships can be freighted with tea from the rich tea-growing districts all round. Lower down lies **NANKING**[5] (500), a former capital of China, and still a great seat of Chinese learning. On the Wusung, a little above the mouth of the estuary of the Yang-tse-kiang, stands **SHANGHAI** (350), the principal centre of foreign commerce on the mainland of China. The chief town of the south, probably the most populous of all China, is **CANTON** (1600), on the delta of the Si-kiang. It lies in a region rich in rice, sugar, and indigo, and possessing water communication with the silk and tea districts further north. Close by, on the river, a population of 300,000 dwells in boats moored in long rows.

---

[1] All the estimates of population of Chinese towns are very uncertain.

[2] The name of a kind of flat-bottomed ship, high in the prow and stern, used in China and Japan.

[3] The Grand Canal is no longer navigable throughout, on which account one of the Chinese railway schemes most actively promoted at present is that for a railway from Nanking to Tientsin and Peking.

[4] Also spelled *—ow*. See Rules, p. 9.

[5] Meaning 'Southern Court,' as distinguished from Peking, 'Northern Court.'

At the mouth of the estuary of the Canton River are two small islands, in European hands: at the northern entrance the rocky island of **Hongkong**, with the town of **VICTORIA**, belonging to the British; at the southern, **Macao**, belonging to the Portuguese. Of these the former is by far the more important, being the principal seaport of Southern China. In 1897 a lease of **Kiauchou Bay**, on the south side of the Shantung Peninsula, was granted to the German Empire, and in 1898 a similar lease of the naval port of **Weihaiwei**, on the north side of the peninsula, was made to the British.

FIG. 53.—CHINESE GATEWAY. (By the kind permission of Messrs. Chapman and Hall.)

Manchuria, to the north-east of China, is a fruitful country, rich in pastures, hitherto thinly populated, but now receiving large numbers of Chinese colonists in the south. **MUKDEN** (200), on a tributary of the Liau-ho, is the capital, and **Niuchwang** (Newchwang), near the mouth of the Liau-ho, is a rising treaty port. In 1898 the fine naval station of **Port Arthur**, at the end of the peninsula running out towards Shantung, was leased to Russia, which has also obtained the right to connect it with the Siberian railway.

6. **KOREA**, the mountainous peninsula to the east of the Yellow Sea, has been opened to foreign intercourse only since 1883.

Its capital is **Se-ul**, the port of which is **Chemulpo**.

7. CENTRAL ASIA.—The vast mountain-girt tablelands to the north and west of India and China (covering an area of about two-and-a-half millions of square miles in all) are mostly uninhabited solitudes, in some parts of which explorers may travel for three months together without seeing a human being.

Tibet.—The southern part of the area is the loftiest tableland in the world, in the south and west nowhere less than 12,000 feet in height, though sinking in the north, at the base of the Kuen-lun Mountains, to about 4,000 feet in some parts. On this great tableland lie the head-waters of all the great rivers of South-eastern Asia. The inhabitants, who profess an exceedingly corrupt form of Buddhism, and suffer under an oppressive priesthood, are chiefly settled along the narrow basin of the Sanpu (Upper Brahmaputra). Here stands **Lhassa**, the residence of the Dalai Lama, or high-priest, who is worshipped as a god.

North of Tibet and China lies a long relatively depressed area, mostly desert, called by the Chinese the **Han-hai**, or Dry Sea, a name so far appropriate that the region is known to have actually been a sea in some previous period of the history of the world. This area, stretching from the abrupt eastern slopes of the Pamir plateau, in the west, to the so-called **Khingan Mountains**[1] in the east, is as long as the Mediterranean, and, like it, is divided into two portions by a narrowing in the middle. This narrowing is important for two reasons: first, because it reduces the journey across the desert to fourteen days; and secondly, because at this part are situated the only two openings by which great bodies of people can emerge from the Han-hai, either northwards along the northern base of the **Tian-shan Mountains**, or southwards into China along the **Nan-shan Mountains.** Through these gates[2] great hordes of mounted barbarians have swept north and south at different periods, and hence they are now included in a province directly under Chinese rule. It was to prevent such inroads that the Chinese in the third century erected the **Great Wall**—a stone-faced earthen rampart, more than 1,200 miles in length, extending from Peking to Suchau, on the northern slopes of the Nan-shan Mountains; but the wall (now in many places in a state of decay) did not always prove effectual.

In both halves of the Han-hai a caravan trade with China is carried on. The western half, or **Tarim basin**, forming **Eastern Turkestan**, is inhabited by Mohammedan Tatars, who during the short but hot summers, grow wheat, maize, and even rice and wine along the banks of the numerous short rivers which dry up in the sands soon after quitting the base of the mountains. The chief towns are **Kashgar** and **YARKAND**,[3] the former the starting point of the caravans across the Pamir to the valley of the Sir, the latter to the valley of the Amu.

---

[1] In reality merely the eastern edge of a lœss plateau.

[2] Compare the 'Moravian Gate' (p. 210).

[3] Both situated on the routes of the old overland silk trade between China and the West.

The eastern half of the Han-hai is the **Shamo**,[1] or **Gobi**, which, along with the mountain-traversed area stretching westwards to Siberia, makes up Mongolia, a region inhabited by nomadic Mongols, Buddhists in religion. **Maimachin**[2] is the town of greatest importance.

All Central Asia is either directly or indirectly subject to China.

8. JAPAN consists of a group of large islands opposite the Sea of Japan, together with strings of smaller ones in the north, opposite the Sea of Okhotsk (the **Kurile Islands**), and in the south opposite the mouth of the Yellow Sea (**Lu Chu Islands**[3]). Their area is about two-thirds larger than that of Great Britain. **Hondo, Shikoku**, and **Kiushiu**, the most populous islands in the group, lie in the same latitude as the eastern or more southerly half of the Mediterranean (including the Ægean Sea). Since 1895 the formerly Chinese island of **Formosa**, further south, has also been subject to Japan.

In some respects Japan may be regarded as an Asiatic Britain. The islands are well situated for commerce, their shores deeply indented, and provided with numerous harbours, especially in the east and south; and the difference in temperature is less than might be expected from the latitude.[4] At Tokyo, the capital, which is in the latitude of Malta, the hottest month is about 15° warmer than at London, but the coldest a few degrees colder. **Yezo**, the northernmost island, though in the latitude of Southern France, has a severe climate, and is inhabited only by about 300,000 people, chiefly round the coasts.

The entire group is mountainous, so that even on the populous islands the level cultivated ground, including the terraces on the hill slopes,[5] forms less than one-eighth of the entire area. The few plains of any importance lie along the lower courses of the rivers. The principal mountain peaks are conical volcanoes, active or extinct, which rise to a great height above the general elevation of the mountain ranges, thus leaving low and easy passes between. **Fusinoyama**,[6] the highest, is upwards of 12,000 feet in height.

The old lavas from these volcanoes, crumbled by vegetation and changes of weather and washed down by rain, have yielded to the plains and valleys an exceedingly rich soil,[7] and this, together with the warm summers and the copious summer (monsoon) rains, renders the low grounds so productive that, small as their area is, the density of the population in all the three more populous islands is upwards of 300 to the square mile. The principal summer crop is **rice** (the staple food of the people), but **barley** and **wheat** are largely grown as winter crops, the young grain springing up before the winter, and remaining green, but not growing all the winter through. **Tea** and **silk** are likewise staple products.

---

[1] Chinese = 'Sea of Sand.' A portion of this desert extends even to the east of Khingan.

[2] See p. 263.

[3] This name, a Chinese one, is more familiar than the Japanese one, Riu-kiu, these islands having been claimed by the Chinese (as well as the Japanese) till 1879. The Chinese language has no *r*, the Japanese no *l*.

[4] See Introd. p. 51.

[5] See Introd. p. 87 and comp. p. 295.

[6] Also known as Fusiyama, Fujiyama, and Fujisan. *Yama* = 'mountain' in *Japanese*, *san* in Chinese.

[7] See Introd. pp. 25 and 87–8.

The Japanese, **mostly Buddhists in religion**, attained a high degree of civilisation before they came much into contact with Europeans and Americans, and their manufacturing industries had reached a corresponding degree of advancement. Their **silk fabrics** and **lacquered wares** are particularly celebrated, and their skill in lacquering has even given a word to our language (japanning). For a long period the Japanese showed the same jealousy of foreign intrusion as the Chinese. Since 1868, however, the Japanese have shown great eagerness to learn from the nations of the West. Western science has been zealously studied. Railways and telegraphs and modern textile and other machinery have been introduced. Native coal-fields (principally in the west of Kiushiu, and in Yezo, near Sapporo) have been developed with the aid of steam and electric power. European institutions have been imitated. In 1889 the government was made a constitutional limited monarchy, and ten years later the whole country was thrown open to foreigners to settle in.

The capital of Japan, the residence (since 1868) of the Mikado, or ruler of the country, is **TOKYO**, formerly called Yedo (1,270), situated at the head of an eastern bay, on one of the most extensive and best watered of the Japanese plains. Being accessible only for small vessels, the foreign commerce is chiefly centred at **YOKOHAMA**, another port on the same bay. West-south-west of Tokyo, about 7 miles to the south of a beautiful lake in another rich plain, is **KYOTO** (340), capital of Japan for 1000 years previous to Tokyo, and still the chief seat of Japanese industry, the centre of Japanese art, and the most interesting of Japanese towns in virtue of its general appearance and historical associations. **NAGOYA** (215) is the principal intermediate town on the railway that now connects Tokyo with Kyoto. **OZAKA** (500), and **KOBE**, on the bay to the south, are its ports. **Nagasaki**, in the south of the island of Kiushiu, has one of the deepest and safest natural harbours in Japan, and is the chief coaling port in the country. **Niigata** is the only port on the west coast, and is accessible to shipping only in summer, navigation being stopped for half the year by the strong surf which beats along the whole of the flat and dangerous west coast during the prevalence of the north winds of the winter monsoon.

AUSTRALIA AND OCEANIA.

AUSTRALIA.

Approximate latitudes: (mouth of Rovuma River, Africa), northernmost point, Cape York (mouth of San Francisco, South America), 11° S.; Adelaide (Buenos Ayres), 35° S.; southernmost point, Wilson's Promontory (Bahia Blanca, South America), 39° S.
Approximate longitudes: 113° to 153° E.

THIS vast island or continent is nearly three millions of square miles in extent, and thus almost exactly equal in size to the United States exclusive of Alaska, and a good deal more than three-fourths of the size of Europe. In the nature of the coast-line, the character of the surface, the climate and productions, it presents no little resemblance to the part of Africa with which it corresponds in latitude.

Its **coast-line** agrees with that of Africa generally in being remarkable for its long stretches of uniform character, without inlets that can be made use of by shipping even for shelter. As in Southern Africa, the part of the coast which is on the whole richest in inlets and natural harbours is that in the east and south-east. On the south coast, on the other hand, the long, gently curving coast-line which forms the **Great Australian Bight** is one unbroken stretch of sandy beach, backed by barren cliffs a few hundred feet high. Between **Spencer Gulf**, which is the principal gulf on the south coast, and **Cape Leeuwin**, the first cape sighted by vessels coming from Europe by Suez or the Cape of Good Hope, the only good natural harbour is that of **King George's Sound**, about 200 miles from that cape. Equally uninviting is a large part of the west and north coast. On the shores of the warmer seas, within and near the tropics, there are long stretches of mud-flats covered with **mangroves** (see p. 58). Such, for example, is the character of a large part of the coast-line that borders the shallow waters of the **Gulf of Carpentaria**, the great gulf of the north coast.

Off the whole of that part of the east coast of Australia which trends from south-east to north-west and ends in **Cape York** numerous coral

reefs (see p. 33 *n*) rise to the surface of the water, making the seas somewhat dangerous to shipping; and about one degree north of the Tropic of Capricorn there begins a series of coral reefs such as are to be seen nowhere else in the world over the same extent of sea. These form together the **Great Barrier Reef.** The whole length of the reef is about 1,200 miles, for it advances into the latitude of Torres Strait, which it nearly closes. The widest part of the reef is in the south, where it extends for about 100 miles from east to west, and in that part also it lies furthest from the coast. At low tide the surface of the reef is just about the level of the surface of the water, and at all states of the tide the edge of the reef can be distinguished by the strong breakers that wash over it. The reef, however, is not continuous. It is broken up by many deep channels, some of which are narrow, others from 10 to 12 miles wide. To seamen these channels are of importance, as allowing a choice of routes (an inner and an outer) between the seaports in the east of Australia and Torres Strait.

Torres Strait itself is greatly encumbered by the work of the coral-builders. The hundred miles of shallow sea here left between Cape York and the coast of New Guinea, besides being studded with numerous small islands, are crowded with coral reefs and sandbanks, amongst which there are only one or two safe channels for shipping.

The chief feature of the **surface** of Australia, as of that of South Africa, is a range of highlands running from north to south near the east coast, and then turning westwards. In Australia it ends in that part of the continent that juts out furthest to the south. Throughout its length it is known as the **Dividing Range,** and it is a dividing range in more senses than one. It varies in character in different parts. In some places it is a plateau, and presents the appearance of a steep mountain range only on its outer or eastern face. In some places the plateau is crowned by mountain ranges running in different directions. In the south-east, where the highest elevations occur, it forms a true mountain range sinking down to plains on both sides.

This part of the Dividing Range is known as the **Australian Alps,** a range of about 400 miles in length. It is densely wooded, except near the tops of the highest summits, which occur in groups on small elevated table-lands. The highest peak of all is 7,350 feet above sea-level. It belongs to the **Kosciusko Group,** and has been named **Mount Townsend** in honour of the surveyor by whom this part of the Australian Alps was first named. The group to which it belongs lies near the north-eastern end of the range, within the borders of New South Wales (see p. 309).

The interior of Australia, like that of South Africa, consists for the most part of broad stretches of level or rolling country. In the east of Australia the surface is high; in the middle there are low plains, and the western half of the continent, so far as it has been explored, consists mainly of a table-land of about 1,000 feet above sea-level.

The Dividing Range forms an important line of division in the climate of Australia, inasmuch as there are hardly any parts of the continent within this range which have a plentiful supply of rain unless they lie within the tropics. In most parts of Australia the most abundant rains are brought by winds from the eastern or southern seas, and the mountains in the east and south-east have their usual effect of causing the rainy winds to lose most of their moisture on the side facing them.[1]

The prevalence of easterly winds in temperate Australia, as in South Africa, is due to the latitude, which is that in which the trade-winds[2] blow over the ocean. The existence of such large masses of land modifies the direction of the winds, but not to such an extent as to cause strong rain-bearing winds to blow from the western seas. Moreover, the summer is the period of the year at which there is the greatest tendency for the winds to blow inland in consequence of the great heat and rarefaction of the air on the land,[3] but that is the period of the year when most vapour can be retained in the air without condensation.[4]

The result is that there are vast tracts in the interior of Australia that are absolutely desert, and for ever doomed to remain without inhabitants, these lying more to the west than to the east, and there are other large areas that can produce only a scanty herbage, fit for nothing but sheep-rearing, and in many places not to be depended on every year even for that. A large part of Tropical Australia has abundant summer (monsoon) rains,[5] and there are small areas in the south-west and south which have the rainfall chiefly in autumn and winter.

The nature of the climate of Australia explains that of the Australian rivers. Most of those which enter the sea on the east and south-east of the Dividing Range are comparatively short, but are, as a rule, well supplied with water all the year round. All the great rivers take their rise on the inner slopes of the Dividing Range, and flow towards the west or south-west. Only one of these, the **Murray**, enters the sea by an independent mouth.

This river takes its rise in the Kosciusko group of the Australian Alps, and flows on the whole westwards, but finally turns south-west before entering the sea. The Murray itself, and its two great tributaries on the right bank, the **Murrumbidgee** and the **Darling**, might be reckoned among the great rivers of the world in respect of their length, for they are all much more than 1,000 miles in length, but the climate of the region causes them to be very scantily supplied with water. The Darling even dries up in summer in many places into a chain of small lakes. The shorter feeders on the left bank of the Murray help to keep that river more constantly supplied with water through the melting of the winter snow of the Australian Alps.

---

[1] See p. 52 (3) (*a*).
[2] See p. 39.
[3] See p. 38 (under Winds).
[4] See pp. 49–50.
[5] See pp. 42 and 51 (*b*).

Though shallow, all these rivers can be made use of for a longer or shorter period of the year by small steamers, which ascend for many hundreds of miles into the interior. Unfortunately for Australia, however, this river navigation is greatly impeded at the river mouth. In the region in which the Murray enters the sea, the coast-line is formed by a long line of sand-dunes, which at the mouth of the river give place to a bar (p. 27), the navigable channels in which are dangerous and shifting.

Many of the rivers of the Australian plains end by drying up in the sands, or in swamps, like the **Diamantina**, and others flow into large shallow **salt lakes** (see pp. 29, 31), which are a highly characteristic feature of the interior of Australia. Of the rivers that end in this way, the chief is the **Barcoo** or **Cooper's Creek**,[1] which in times of flood is a broad stream flowing into **Lake Eyre**, but in dry periods does not reach this lake.

Besides Lake Eyre, **Lakes Torrens** and **Gairdner** in South Australia and **Lake Amadeus** in West Australia may be mentioned as among the chief salt lakes belonging to the continent.

The use of the great rivers of the plains as navigable highways and for the watering of flocks is the most important to which they have yet been put, but the gradual slope of the plains over which they flow seems likely to admit of their being employed in the future to irrigate large tracts of country, to which they will then become as valuable as some of the rivers of Spain and Italy are to the land on their banks (see pp. 235, 237, 2. 242).

The **vegetation** and animal life of Australia are highly peculiar—so different from those of the rest of the world, as to show that this great island cannot have had any land connection with the continent within a recent geological period.[2] The **characteristic trees** are many different kinds of **eucalyptus**, some of which grow to a greater height than even the tallest giants of the Sierra Nevada.[3] They do not, however, grow, like these latter trees, in dense forests, but are somewhat thinly scattered over the surface.

Their roots are long, so as to be able to suck up moisture from a considerable depth;[4] their leaves narrow, and in full-grown trees, attached in such a manner that their edges are above and below instead of sideways. In this position they are not so apt to give off vapour as the leaves of trees of moister climates, and their texture also fits them in several ways to retain moisture.[1] **Acacias** are also very numerous and characteristic, and many of them when full-grown lose their leaves and preserve in their place only flattened leaf-stalks attached like the leaves of the eucalyptus.

---

[1] *Creek* is used in America and the Australasian colonies in the sense of a small river, or a river with little water in its bed.

[2] Comp. pp. 151 and 316.

[3] See p. 337. Some of the commonest kinds of eucalyptus are popularly known in Australia as gum-trees, from their containing a gummy sap. The species most widely introduced into other countries is the so-called "blue gum."

[4] Comp. the date-palm, p. 66.

True forests (mostly with a dark and gloomy foliage) are found chiefly on the well-watered slopes of the eastern mountains. In many parts of the interior dense thickets of bushes or low trees (**scrub**), sometimes thorny, form an almost impenetrable barrier to progress. Many kinds of native grasses cover the ground, among which the tall **kangaroo grass** is valuable for its power of withstanding long drought. On some of the salt plains grows a shrub known as the **salt-bush**, which forms a valuable fodder-plant—in some places, and especially in dry seasons, the only one.

Among **animals**, Australia possesses, in place of the mammals of the great continents, a great variety of **marsupials**, a group scarcely met with outside of the Australian region,[2] and of which the kangaroo is the best-known representative. From other mammals the group is distinguished by the fact that in most species the female has a pouch (Latin, *marsupium*), in which it carries about its young for some time after birth.

The native Australian dog, the **dingo**, is not a marsupial, but was probably introduced at some remote date by man. **Rabbits**, which have been introduced more recently, have multiplied to such an extent as to have become a real plague, through the ravages which they commit in the pastures. There are no monkeys even in the tropical parts of Australia, but **parrots** and **cockatoos** abound, and a running bird, the **emu**, resembling the ostrich of Africa and the rhea of South America, scours the plains. **Alligators** are found in all the rivers within the tropics.

The **native Australians**, a very dark-coloured race, were at the time of the discovery of Australia by Europeans in a very backward state, and have since made no advance in civilisation. Having no domesticated species of animals yielding milk, and no cereal or other food-crops suited for agriculture, they had not the means of living a settled life, and were condemned to live by hunting and fishing, and gathering the poor fruits and edible seeds and roots afforded by a few of the native trees and herbs. A few boughs or pieces of bark form their only shelter, and their clothing consists of a scanty covering of skins or matting. At no time were they numerous, and since the arrival of Europeans they seem to be quickly dying out.

---

[1] Comp. the Mediterranean region, p. 156, and Introd. p. 59.

[2] The opossums of America belong to this group, which, however, has no living representatives in Europe, Asia, or Africa.

The present inhabitants are mainly colonists. The majority are of British origin, but latterly there has been a large German element. Now there are also many thousands of Chinese (nearly all men), and Polynesians from the islands of the Pacific have been introduced in considerable numbers as labourers into the tropical parts. The colonisation of the island began in 1788, after the eastern coasts had been surveyed by Captain Cook, and the first people settled here were convicts. Free colonists first began to settle in great numbers after the discovery of rich **gold** deposits in 1851, but the great and growing wealth of Australia consists in its **sheep-pastures**, no other part of the world, taken as a whole, being so well adapted for the production of **wool**.

Politically, Australia is now divided among **five British Colonies**, the government of which is modelled more or less on that of the mother country. In 1891 a "federation convention" composed of delegates representing all the Australasian colonies, including New Zealand and Tasmania, met at Sydney, and passed resolutions in favour of the establishment of a federal government for all the colonies, and defining the powers which it was proposed to confer on the general government and parliament of the colonies, as distinguished from those which were to be retained by the several colonial governments and legislative assemblies.

The following table gives the names of the Australian Colonies, including Tasmania and New Zealand, with other particulars relating to them :—

Colonies.	Area in thousands of square miles.	Ratio to Great Britain.	Population in thousands.		Increase per cent.	Number per 100 Persons living in 1896-97.		
			1871.	Estimated June 30, 1897.		Sheep.	Cattle.	Acres under Crop.
Victoria	88	1	732	1,170	60	1,127	157	228
New South Wales	309	3½	504	1,311	160	3,686	170	127
Queensland . . .	668	7½	120	480	300	4,082	1,355	65
South Australia .	903	10	186	357	92	1,790	179	601
Western Australia	1,060	12	25	158	532	1,424	126	71
Tasmania . . .	26	¼	102	167	64	982	94	136
New Zealand . .	104	1⅐	256	719	180	2,662	158	222

Railways now extend for hundreds of miles inland from various places on the coast, and at the end of 1887 the last links in the series of lines connecting all the Australian capitals, from Adelaide in South Australia to Brisbane in Queensland, a distance of about 1,800 miles, were approaching completion. Already the series is so far complete that the port of Adelaide has become "the Brindisi of Australia," the place at which all the mails are collected and landed by vessels following the south coast route. Since 1872 the Australian Colonies have been connected by **electric telegraph** with the rest of the world through the completion of the great overland line, which crosses the colony of South Australia between Adelaide and Port Darwin, and is there connected with a submarine line to Java.

In the **commerce** of the Australasian Colonies taken together, the chief **exports** are wool, gold, and grain, and the chief **imports** from distant countries manufactured articles, such as cotton, woollen, and linen goods, clothing, iron, and articles made of iron, and other metals. The importance of this commerce to the mother country is shown by the fact that, notwithstanding the comparatively small population, these colonies received on an average, during the period 1881–5, more than one-tenth in value of all the exports of British and Irish produce from the United Kingdom, only about 2½ per cent less than India with its enormous population.

THE AUSTRALASIAN COLONIES.—A. Victoria, the smallest colony on the mainland of Australia. It lies to the south of New South Wales, from which it is separated mainly by the Murray River. It was a dependency of New South Wales till 1851. The eastern half of the colony is to a large extent occupied by the **Australian Alps** and their spurs. The highest mountain belonging to this range in Victoria (and the highest in the colony) is **Mount Bogong**. In the western half of the colony the Dividing Range goes by various names. The chain containing the highest summit in this part of the colony is called the **Grampians**. The district to the south of the Australian Alps is called **Gippsland**, and is partly a region of dense forests with few inhabitants, partly a region with rich pasture-grasses, forming the principal horse and cattle rearing part of the colony. In the north-west is the district called **Wimmera**, at present mainly a waterless desert, but containing a tract on the borders of the Murray on which large irrigation works are projected. Victoria is the colony which has produced and still produces the largest amount of **gold**, but the yield of the gold-fields has gradually declined. The production of **wool** and **wheat** is, however, increasing, and in recent years Victoria has become noted even in Europe for its **wine**.

The capital is **MELBOURNE** (including suburbs within ten miles 370), on the Yarra, a short distance above its mouth in Port Phillip Bay. It was founded on an uninhabited site in 1835, just after the discovery of rich pastures in the neighbourhood, and named after the British Prime Minister of the day. It is the seat of a university. On a western arm of this bay stands the port of **Geelong**. In the interior north-west of Melbourne is **Ballarat**, the centre of the richest alluvial gold-field ever opened up, but which is now to a large extent exhausted, gold being now mainly obtained not by digging, but by the crushing of quartz rock. In a more northerly direction from Melbourne lies **Sandhurst**, the chief centre of quartz-crushing. On the Murray, **Albury**, at the head of the ordinary navigation of the river,[1] and the place where the river is crossed by the railway to Sydney; lower down, **Echuca**, at the place where the river makes a sharp bend to the north-west,[2] and where another railway now crosses into New South Wales.

B. New South Wales, so called by Captain Cook, who was reminded of the Wales of Great Britain by the appearance of the mountains which he saw from off the coast. It was in this colony that the first settlement was founded in Australia, namely, on the magnificent natural harbour of **Port Jackson**, the harbour of Sydney, which has few rivals in the world either for beauty or convenience. Throughout this colony the Dividing Range forms a more continuous barrier between the coast lowlands and the interior plains and tablelands than it does in Victoria, and it was long before the settlers found a way across the **Blue Mountains**, as the part of the Dividing Range behind Sydney is called. The interior is traversed by the chief tributaries of the Murray, and the treeless plains which lie to the north of the Murray, and are noted for the fine quality of their wool, are hence known as the **Riverina**. Besides **gold**, **tin** is found in large quantity (mostly near the northern frontier), and New South Wales possesses the **chief coalfield** worked **in the southern hemisphere**. Great **silver** deposits have begun to be worked in the extreme west.

The capital is **SYDNEY** (including suburbs 220), so named after Viscount Sydney, who first suggested the establishment of the colony. At the head of the so-called Parramatta River, which is in reality a prolongation of the inlet of Port Jackson, stands **Parramatta**, in a district noted for its oranges. North of Sydney, on the estuary of the Hunter River, is **Newcastle**, the chief coal-mining town, to which fact it owes its name.[3] The coal from this port is now despatched not only to all the other Australian colonies, but also to India, China, South America, and even San Francisco. **Bathurst**, on the table-land behind Sydney, is the centre of the chief wheat-growing region of the colony.

---

[1] See p. 61 (2) (*d*).

[2] See p. 61 (2) (*b*).

[3] Comp. pp. 117, 172.

C. Queensland, the colony to the north of New South Wales, once, like Victoria, a dependency of New South Wales, from which it was separated in 1859. It includes all the islands in the narrowest part of Torres Strait. The surface consists mainly of table-land above 1000 feet in height, and the district in the south-east known as the **Darling Downs**, on which are the finest pasture-grasses in the colony, is about 2,000 feet high, and thus has a comparatively cool climate for its situation within five degrees of the Tropic of Capricorn. Extending far into the Torrid Zone, Queensland has more varied products than the more southern colonies. Among the tropical and sub-tropical products are cotton, arrowroot, ginger, coffee, fruits, and at present **sugar-cane**, which is largely grown in the low river-valleys on the coast. The **chief minerals** are **gold, tin,** and **copper.**

Labourers are obtained for the sugar-plantations from the islands of the Pacific, bargains being made with the natives to come and work for the planters for a term of years; but by an act of the Queensland Parliament this mode of obtaining labourers is to cease in 1890.

The capital of the colony is **Brisbane**, 500 miles north of Sydney, situated on both sides of the Brisbane River, at the head of navigation for large sea-going vessels.[1] **Toowoomba**, on the table-land to the west of Brisbane, is the chief town on the Darling Downs; **Stanthorpe**, near the southern frontier, the chief tin-mining centre; **Gympie**, the chief gold-mining town in the south; **Charters Towers**, the chief gold-mining town in the north. **Rockhampton**, close to the Tropic of Capricorn, at the head of navigation on the Fitzroy River, is the second town in population in the colony, the outlet for a rich and extensive pastoral district, as well as for districts producing gold and copper. All these towns are within a hundred miles of the east coast.

D. South Australia does not answer to its name, but extends from south to north to the west of the three colonies already treated of. It was founded in 1834 by an Act of the British Parliament, and at the time of its foundation was expected ultimately to include the territory belonging to Victoria. Most of the inhabitants of the colony are confined to a district smaller than England, which is the only part of the colony in temperate latitudes that receives a fairly large supply of rain (chiefly in winter). This is the district traversed by the **Mount Lofty Range** and the **Flinders Range** of mountains to the east and north of Spencer Gulf and the Gulf of St. Vincent. This colony is the principal wheat-growing colony of Australia, and wine and olives are also among its products. From an early date **copper** has been its chief mineral, but a gold-field, said to be rich, has been discovered about 200 miles north-east of Adelaide.

---

[1] See p. 61 (1) (b).

Irrigation by Artesian wells[1] and other means is practised in the drier parts of the colony, and there is now a project for carrying out large irrigation works in the north-east in a district bordering on the Murray River. Irrigation by Artesian wells is found to be practicable at several places in the neighbourhood of Lake Eyre, which is the lowest lying part of Australia. Further north the telegraph line passes through many well-grassed regions, which may some day be settled, and other grassy tracts are now known to border some of the river-courses. The most important of these rivers is the **Finke**, which flows south-eastwards from the **MacDonnell Ranges** (on the Tropic of Capricorn), but dries up before entering Lake Eyre.

The northern territory of Australia is tropical, and the few inhabitants are mostly Chinese.

The capital of the colony is **Adelaide**, situated on the plain near the east side of the Gulf of St. Vincent. It was founded in 1837 and named after the queen-consort of William IV. About seven miles from the city stands **Port Adelaide**, on a small inlet opening out of the Gulf of St. Vincent. This port can be reached by tolerably large ships, but the largest ocean-steamers have to touch at quays on the gulf itself. **Burra Burra**, about a hundred miles north of Adelaide, is the seat ot the chief inland copper-mines, but the principal copper-mines in the colony are those of **Moonta**, on the peninsula between Spencer and St. Vincent Gulfs. From a neighbouring port some of the ore is shipped for smelting to Newcastle in New South Wales in vessels which bring back coal to carry on smelting at the South Australian port.

E. Western Australia, the largest but the least populous of all the colonies. The vast deserts belonging to it will always cause it to be more imposing in extent than population, and even in the principal settled area, the district in the south-west, which receives autumn and winter rains brought by north-west winds corresponding to the south-west winds of Western Europe,[2] the population is very sparse. Fine hard **timber** has always been an important product of this colony.

In the northern parts of West Australia pearl-fisheries are carried on along the coast; a gold-field has been discovered in the interior, and good pasture-lands are now attracting settlers. The chief pastures are in **Kimberley District**, along the banks of the **Fitzroy River**, which flows into **King Sound** about 17½° S.

The capital of the colony is **Perth**, on the Swan River, about twelve miles above its port, **Fremantle**, on the west coast. **Albany**, on King George's Sound, 260 miles distant from Perth, is the place where the first settlement was made on West Australian territory (in 1826). Since

---

[1] See Introd., p. 30-1.

[2] See pp. 41, 156-7.

1889 this port has been connected with Perth by rail, and the railway eastward from Perth has been continued as far as the rich gold-field of **Coolgardie** and **Kalgoorli**, discovered in 1891 (a distance of more than 350 miles).

F. **Tasmania.**—This colony consists of the island so called together with the smaller islands adjacent. It is separated from Victoria by Bass Strait. Like Victoria and Queensland, the colony was originally a dependency of New South Wales, and the first settlement upon it was a convict establishment formed in 1803, but it was made independent in 1825. At that time the island was known as Van Diemen's Land, the name given to it by its discoverer, the Dutch navigator Tasman, in honour of the governor of the Dutch possessions in the East Indies at the time of the discovery; but the name was afterwards changed to Tasmania in honour of the discoverer himself. The surface of the main island is in great part high. A bleak table-land from 2000 to 3000 feet in height occupies the middle and a large part of the western half of the island, and is crowned by mountains and cleft by deep chasms through which issue the torrents which come to form the rivers of the west coast. To the east of this table-land lies a tolerably level and open district, which forms the great grazing ground of the colony. Elsewhere the colonists have had to contend with land more or less heavily timbered. The climate is somewhat warmer than that of England, well adapted for all English crops, and specially well adapted for fruits. Tin and gold are important minerals, and coal-mines are also worked.

At the time of its settlement by the British, Tasmania was inhabited by a race not unlike the Australians, but having curly instead of straight hair. These people were treated by the settlers with no little cruelty, and soon began to die out rapidly. The race became extinct in 1876.

The capital of the colony is **Hobart**, situated at the end of the island furthest from Australia, an inconvenience which is, however, outweighed by the excellence of its harbour, formed by the estuary of the Derwent. **Launceston**, the next town in size, is situated at the head of navigation on the Tamar, forty miles from the mouth of the estuary known as **Port Dalrymple**, on the side of the island nearest to Australia.

G. **New Zealand.**—This colony (first settled in 1840) consists mainly of two large islands and one smaller one situated at the distance of about 1,000 miles from the nearest points of the south-east coast of Australia. The large islands are usually known as the **North** and the **South Island**, and are separated from each other by **Cook Strait.** The smaller island is called **Stewart Island,** and is separated from the South Island by **Foveaux Strait.**

Beside the main islands just mentioned, New Zealand possesses several groups of small islands at the distance of from 150 to 350 miles. The principal are the **Chatham Islands** to the east, the **Auckland Islands** to the south, and the fertile group of the **Kermadec Islands** to the north-east (the last annexed to New Zealand in 1887).

The **coast-line** of New Zealand is in most places high and rocky, especially on the west coast. In the extreme south-west it is broken up by numerous inlets, with very steep and lofty cliffy shores, resembling the **fiords** of Norway.[1]

The **surface** of all the islands is **highly mountainous.** One long succession of mountains runs through both islands from the extreme south-west to the extreme north-east. It is interrupted by Cook Strait, and divided by gaps into a number of chains, to which different names are given. In the South Island these mountains lie for the most part close by the west coast, and it is about the middle of this island that the highest part of the whole series is found. This part is called the **Southern Alps,** and, like the Alps of Europe, they are crowned by perpetual snow, and have thei higher valleys filled with large glaciers, and their lower valleys occupied by large and picturesque lakes.

The highest summit of the Southern Alps, **Mt. Cook** (named after the celebrated navigator who was the first among Englishmen to visit these islands), attains the height of 12,350 feet, about 3,500 feet lower than Mt. Blanc.

The mountains that continue the series of the South Island lie on the east side of the North Island, but the loftiest peaks of this island are in the west, and are all of volcanic origin. They lie in one of the most remarkable volcanic regions in the world.

Tongariro, near the middle of the island, is the chief active volcano, the crater of which is known by the name of Ngaurohoe. A little to the south is **Ruapehu,** 9000 feet high, the loftiest summit in the island, a volcano now nearly extinct. Apart from these, the regular volcanic cone of **Mt. Egmont** rises in the west from plains of great fertility. **Lake Taupo,** the largest lake in New Zealand, is considered by some to be the crater of an extinct volcano of immense size, and still further north, hot springs, geysers, and other signs of volcanic action abound all the way to the **Bay of Plenty**, which is studded with volcanic islets. The small **Lake Rotomahana**, about thirty miles from the Bay of Plenty, used to be visited by travellers from all parts of the world on account of the beautiful pink and white sinter[1] terraces, which had been formed by hot springs on its shores, but in the middle of 1886 these were destroyed by a tremendous volcanic outburst which overwhelmed the whole neighbourhood.

---

[1] See p. 228.

The most extensive plain in New Zealand is that known as the **Canterbury Plains**, which occupy the middle of the South Island on the eastern side, extending for upwards of 100 miles from north to south, with a varying breadth.

The **rivers** of New Zealand are numerous, but the longer ones are, for the most part, unfit for navigation. Those of the South Island are mostly rapid torrents, fed in summer by the melting snows and glaciers of the Southern Alps.

The chief navigable river is the **Waikato**, which drains Lake Taupo, and enters the sea on the west of the North Island. The **Molyneux** or **Clutha**, a noble stream draining south-eastwards three of the chief lakes at the base of the Southern Alps, is the largest river of the South Island.

The **climate** of New Zealand is not characterised by the liability to droughts from which so much of Australia suffers. The **prevailing rain-bearing winds** are from the north-west, as in the south-west of Australia,[2] and hence the western slopes of the mountains and the plains at their base are plentifully supplied with rain, whereas the plains on the east have a much more scanty rainfall.[3] Hence the **forests** are chiefly on the west side of the mountains, and the Canterbury plains are the chief pastoral and agricultural region in the colony. The **temperature** resembles that of England more than that of Italy, with which New Zealand corresponds in latitude.

The New Zealand crops, therefore, are similar to those of England (the chief corn crops wheat and oats), and though grapes are grown in the open air in the northern districts, wine cannot be made from them. The more abundant rains of New Zealand cause the pastures to be richer than those of the Australian colonies (except Queensland), and hence New Zealand supplies New South Wales with considerable numbers of horses and cattle, as well as butter and cheese.

The **native plant and animal life** of New Zealand are to a large extent different from those of Australia. New Zealand has no native eucalypts, and no native acacias, no native marsupials.

---

[1] See p. 30.

[2] See p. 311.

[3] See p. 52 (3) (*a*).

The most valuable native tree is the **kauri pine**, which is confined to the northern end of the North Island. It yields a fine timber, and the finest of all resins, the well-known kauri gum. Large lumps of this hardened gum are dug out of the ground on the sites of old forests of this tree. The so-called **New Zealand flax**, a plant with long sword-shaped leaves, yields a very strong fibre, well suited for rope-making. Among native birds is a wingless bird called the apteryx or kiwi, and many skeletons exist of an extinct bird called the moa, which is one of the largest running birds that ever existed.

The **minerals** of New Zealand are of great value, the chief being gold and coal.

The natives of New Zealand, called the **Maori**, are the most intelligent of all the natives whom the Europeans met with on any of the Australasian colonies. They are a brown-skinned, well-formed people, fond of tattooing themselves. Their whole number is little more than 40,000, and most of these live on the North Island.

The capital of the colony is **Wellington**, in the south of the North Island, on an inlet from Cook Strait, forming a safe and commodious harbour. It is about 1,200 miles from Sydney, 1,400 from Melbourne. **Auckland**, on a narrow isthmus of the long peninsula of the North Island, which runs out to the north-west, is the largest town in New Zealand, and was once the seat of government. It is a calling-station for steamers from San Francisco to Sydney, and as it lies on the east side of the isthmus (the west side having only a shallow harbour), vessels from Auckland to Sydney have to sail round the northern end of the island. In the South Island the chief towns are Christchurch and Dunedin. **Christchurch** is the principal town on the Canterbury Plains. It is situated a few miles from the east coast, and separated by a tunnelled hill from its port **Lyttelton**, situated on one of the inlets of Banks Peninsula. **Dunedin** stands at the head of an inlet further south, in the old province of Otago, and is the port of the principal gold-fields of New Zealand. **Invercargill** is the chief town on Foveaux Strait. Its port for large vessels is **Bluff Harbour**. **Greymouth** and **Westport** are the ports of the New Zealand coalfield on the west side of the South Island.

THE AUSTRALASIAN ISLANDS.

(*Except Tasmania and New Zealand.*)

1. New Guinea, which is of about the same size as New South Wales, is the largest island in the world, with the exception of Australia. It stretches obliquely from near the equator in the north-west to about the same latitude as Cape York on the mainland of Australia in the south-east. Its western half, as far as the meridian of 141° E, has long been claimed by the Dutch, but till recently its eastern half was independent. Now, however, this portion also has been declared to be under the protection of European powers, and the southern portion of the eastern half has been declared under British, the northern under German protection. The latter is now called **Kaiser Wilhelm**[1] **Land.**

The surface of the island is in many parts mountainous. The whole of the narrow south-eastern extremity (which lies almost entirely within the British protectorate) is traversed by chains of mountains, one peak of which, **Mt. Owen Stanley,** is believed to exceed in height the highest summit in New Zealand. Lying within the monsoon area, the whole island receives copious rains during about half the year (see pp. 42 and 51 (*b*)), and, like other tropical countries with an abundant rainfall, New Guinea is covered with dense forests, which are one of the chief causes why the interior of the island is as yet so little known.

Like Tasmania, which is also separated from Australia by a shallow strait, New Guinea was probably at one time connected with the mainland of Australia by land, and hence has native plants and native animals similar to those of its larger neighbour. The forests of New Guinea are haunted by many beautiful and gay-plumaged birds, among which are birds of paradise. The cassowary, a running bird with a brilliantly coloured bony crest on the head, takes the place of the emu of Australia. The resemblance in animal and plant life extends also to the islands to the west of New Guinea as far as a deep strait between the two islands of Bali and Lombok.[2]

The natives are known as **Papuans,** and are a very dark-skinned race with black curly hair, often growing in numerous tufts. They dwell in villages, the houses of which are built on stakes along the margin of the sea-coast or the rivers, and are frequently placed in the water and connected with the shore by a bridge.

Pile-dwellings similar to those inhabited by the Papuans are very widespread. They are in very general use among the Malay races,[3] and have been met with also in New Zealand, in Central Africa, and on the coasts of both North and South America; and remains of similar dwellings belonging to prehistoric times are known in Switzerland, Scotland, and Ireland. The example shown in the cut belongs to the Eastern Archipelago.

---

[1] *Ger.* = Emperor William.

[2] This strait forms part of what is known as Wallace's Line, which, as was pointed out by the English naturalist A. R. Wallace, divides two groups of islands, one of which was probably connected at one time with the mainland of Asia, and has plants and animals more nearly allied to those of the Asiatic continent, and the other probably connected with Australia.

[3] See p. 290.

Like other uncivilised natives of tropical countries, the Papuans are very indolent. The **food-plants** which they grow are mainly such as require but little cultivation—**bananas, yams, sugar-cane, coco-nuts, and taro**;[1]

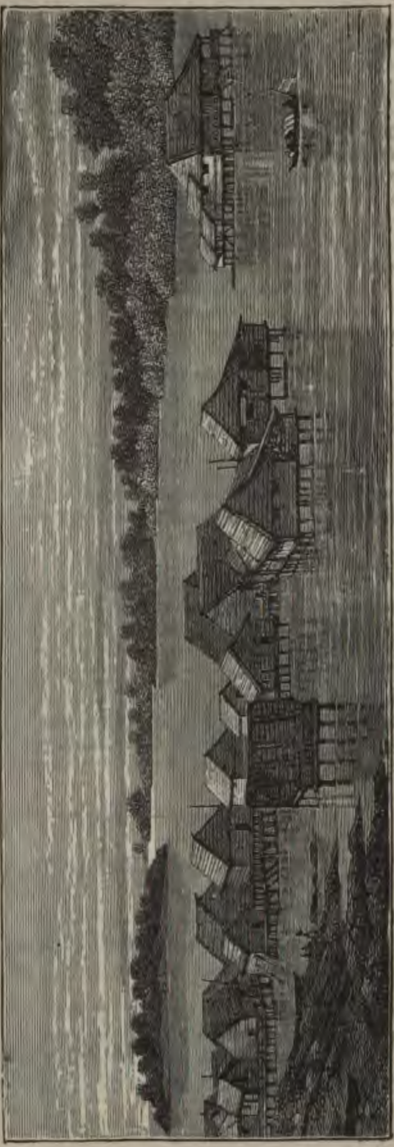


FIG. 54.—PILE-DWELLINGS AT SAMBOANGAN (PHILIPPINE ISLANDS).

[1] The *banana* grows everywhere within the tropics, and also five or six degrees beyond them. It begins to bear fruit soon after being planted, and will afterwards go on yielding a hundredweight of fruit year after year without any attention. Many different kinds are cultivated both in the Old World and the New. The *yam* is a climbing plant with tubers or underground stems from twelve to twenty inches in length, and four to six inches in thickness. Like those of the manioc (see p. 347), they are injurious when eaten raw. So also are those of the *taro*, a plant cultivated (in marshy soil) not only for its tubers, but also for the sake of its leaves, which are eaten as vegetables. *Coco-nuts* are the fruit of a tall palm tree, which adorns the coasts in all parts of the tropics, and

but in addition to these, tobacco is also grown, and is indeed so highly prized, that it is the chief article of barter with the natives.

Mission-stations have now existed for many years at different points of the coast now under the protection of Great Britain, and in the schools belonging to these stations many native children are now educated, many of the teachers being natives of other islands of the Pacific. No plantations belonging to Europeans as yet exist in the British protectorate, or are even allowed, since the land belongs to the natives, and none but natives are at present allowed to acquire it. The residence of the British governor or Special Commissioner of New Guinea is at **Port Moresby**, which lies to the east of the Gulf of Papua, and has regular steam communication with several ports in Queensland. It lies behind a long barrier reef which skirts the whole of this part of the New Guinea coast, access being obtained to it by one of the numerous deep channels by which this reef, like the Great Barrier Reef of the neighbouring coast of Australia (see p. 313), is crossed.

2. **Melanesia.**—This name, meaning 'islands of the blacks,' is applied to several groups of small islands to the east and south-east of New Guinea, inhabited by Papuans.

The islands of New Britain, New Ireland, the Admiralty group, and others to the north of the eastern end of New Guinea, are now known by the name of the **Bismarck Archipelago**, and belong to Germany. These are followed south-eastwards by the **Solomon Islands**, the **New Hebrides**, and **New Caledonia**. Since 1885 a portion and since 1899 the whole of the Solomon group has been recognised as belonging to the British sphere of influence. New Caledonia, along with the adjacent group of the **Loyalty Islands** to the east, belongs to the French, who make use of it as a place of deportation for convicts and political offenders. It is skirted all round by a long line of coral reefs, which stretch for a considerable distance to the north-west, enclosing a number of small islands. **Numea** or Noumea, in the south-west of New Caledonia, is the chief town on the island. The New Hebrides are now under the joint protection of the British and French.

POLYNESIA.

This name is applied to all the small islands of the Pacific Ocean, with the exception of those already mentioned. They are mostly coral islands, and hence flat (p. 33, *n.* 1), but some (those

---

is the only tree that grows on many of the small islands of the Pacific. The nut when green yields a refreshing drink; when ripe and brown, it contains the white kernel, which is eaten as food, and which, after being dried, is known as *copra*. This article is of great value for the oil it contains, which is used in making soap and candles.

generally of greater size) are of volcanic origin and mountainous. They are almost all situated within the tropics, and the chief food of the people is the bread-fruit,[1] in addition to those already mentioned as cultivated in New Guinea. The people belong to a race with a clear brown skin and smooth hair, and are a branch of the great Malay stock, to which the Maori also belong. Christianity has been introduced with considerable success on many of the islands.

1. The **Fiji Islands** are a group composed mainly of volcanic islands situated to the north of New Zealand, and mostly lying between the parallels of 16° and 19° S. Their total area is less than a third of that of Tasmania, and Viti Levu, the largest of the islands, embraces more than half the land-surface belonging to the group. The islands were ceded in 1874 by their native king to Britain, and now form a British Crown colony. Even before that time people of European origin had established plantations of tropical crops on several of the islands, and since that date the products of such plantations (chiefly sugar, but also

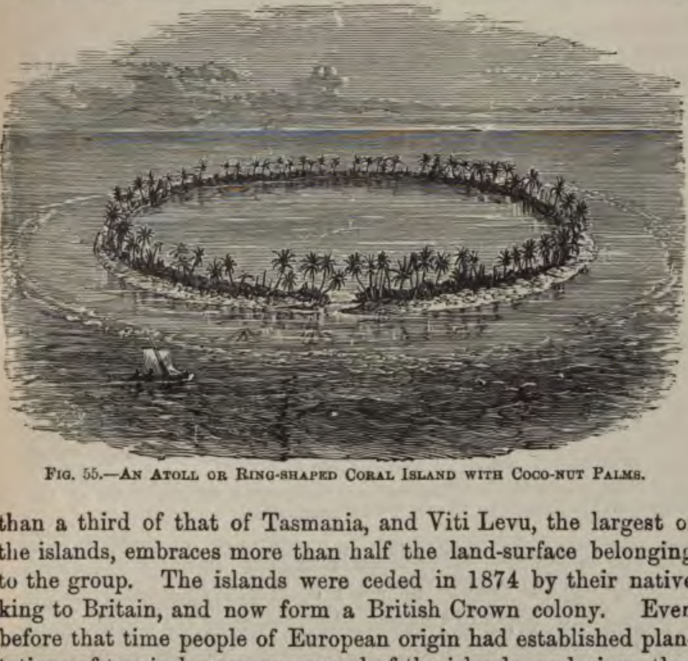


FIG. 55.—AN ATOLL OR RING-SHAPED CORAL ISLAND WITH COCO-NUT PALMS.

---

[1] The *bread-fruit* is the fruit of a tree confined to the tropics. The fruit weighs from three to four pounds, and the tree is so productive that two or three trees are said to be capable of supporting a man for a year. As to the other products here mentioned, see p. 317, note.

coco-nut, maize, tobacco, coffee, and cotton) have increased very greatly, and a large trade has thus grown up.

The chief towns of the group are seaports with fine harbours protected by coral reefs. The capital is **Suva**, in the south-east of Viti Levu. The next in importance is **Levuka**, the former capital, on a small island to the east of Vitu Levu. The small island of **Rotumah**, to the north of the Fiji group, is now also British, and is annexed to the colony of Fiji. The total population of the group is about 130,000.

2. The **Tonga** and **Samoan**, or **Navigator Islands**, lie to the east of the Fiji group, and still further east are the **Cook** or **Hervey Islands** (largest, Rarotonga), **Society**, and **Low Islands**.

The British flag was hoisted on the Hervey group in 1888. To the N. of the group, in about 9° S., lies **Penrhyn Island**, now also British. In 1899 the Samoan Islands were divided between the German Empire and the United States, the German Empire receiving the islands of Savaii and Upolu, the latter containing the port of **Apia**, long the centre of German trade with the Pacific Islands, the chief product of which for Europeans markets is copra. The United States obtained Tutuila with the fine natural harbour of **Pago-pago** (pronounced Pango-pango). At the same time the right of the British to the Tonga Islands was recognised. The Society Islands, of which the most important is the charming volcanic island of **Tahiti**, are under French protection, and so also are the Low Islands, and the **Marquesas** group to the north of the latter.

3. Between the equator and 15° N. are the **Pelew**, **Caroline**, and **Marshall Islands**, in that order from west to east, and south of the last-mentioned group the **Gilbert Islands**.

The first two of these groups belong to the German Empire, which possesses also all the **Marianne** or **Ladrone** Islands, except Guam, which belongs to the United States. Between 0° and 5° N. and E. of 160° W. lie the British islands of **Fanning** and **Christmas**, on the route of the projected cable from New Zealand to Vancouver.

4. The **Sandwich** or **Hawaiian Islands** are an important group of volcanic islands nearer the coast of North America, between 19° N. and the Tropic of Cancer. In area they are about equal to the Fiji Islands, which they resemble in the nature of their products.

The chief island is **Hawaii**, on which the extinct volcano of Mauna Kea rises to the height of nearly 14,000 feet. Further south is the active volcano of Mauna Loa, with the vast crater of Kilauea. The population of the group is under 100,000. In 1898 the group was annexed to the United States. The chief town is **Honolulu**, on the island of Oahu.

AMERICA.

America, or the New World, is less than half of the aggregate size of the three great continents of the Old World, Europe, Asia, and Africa, and the smaller size is due to the comparative narrowness from east to west. The length of the mainland of America from north to south is much greater than the corresponding dimension of the Old World; for, though the most northerly point of the mainland of North America (in latitude 72°) is 6° farther south than the corresponding point of Asia, the most southerly point (in 54° S., two degrees north of the island Cape Horn) is 19° farther south than the southernmost point of Africa, 15° farther south than the southernmost point of Australia.

The original natives of the continent, known as Indians,[1] are believed to be all of one stock. They now form only about a fourth of the entire population, and are most numerous in the south. The whole population is estimated at about 125 millions, or somewhat less than a third of that of Europe, which has an area only one-fourth as great, and America has no considerable extent of territory with a population comparable in density to Europe, China, or India in the Old World,[2] even though there are large tracts fitted by nature for the maintenance of a dense population. The explanation of this contrast is to be found in the history of the continent. Compared with the Old World, America, before its discovery by Europeans at the close of the fifteenth century, was very poorly furnished with the cultivated plants and domestic animals that favour the growth of civilisation. America had only one kind of cultivated grain, maize,[3] to take the place of wheat, oats, rice, and other grains of the Old World; and, what is even more serious, it had no animal that could be

---

[1] A misnomer due to the fact that when America was discovered by Columbus the discoverer believed not that he had touched on a new continent, but that he had sailed round the world and come to the East Indies.

[2] At the census of 1880 not one of the United States of America had a population of as much as 250 to the square mile.

[3] Hence the name *Indian corn*, by which it is sometimes known.

used for the labours of the field,[1] no animal except the reindeer of the far north yielding milk, and North America had not even any beast of burden. Hence civilisation was little developed among the natives, and indeed only two important civilised nations existed before the advent of Europeans, one on the table-land of Mexico, and the other on that of Peru.

NORTH AMERICA.

Approximate latitudes: Quebec (Nantes), 47° N.; St. Paul, Montreal (Bordeaux), 45°; (Hakodate), New York (Naples, Constantinople, Tashkent), 41°; (Niigata), San Francisco (Palermo, Athens), 38°; (Kioto) Memphis, 35°; (Hangchau), New Orleans (Cairo, Lhassa), 30°; (Canton) Havana, 23°; Mexico (Bombay), 19°.

Approximate longitudes of mainland, 56°-168° W.

This continent corresponds to Europe and Asia, or Eurasia, in the Old World, and extends as for south as the southernmost point of India. The resemblance even includes the possession by both of a large archipelago in the south-east, but in the case of North America this archipelago reaches no farther south than the mainland. As regards the configuration of the surface,[2] the two agree in having a vast plain traversed by great rivers sloping to the north, but they differ in the arrangement of their great mountain chains and table-lands. Instead of east and west, the principal mountains of North America run more or less north and south. The great system is that of the **Rocky Mountains**, which stretch through the entire length of the western part of the continent, rising from a table-land which at its widest (between the **Sierra Nevada** and **Cascade Mountains** in the west and the main chains of the Rocky Mountains in the east) extends over one-third of the breadth of the United States. In this part the Rocky Mountains are composed of numerous short parallel chains, leaving openings between their extremities. The highest summits here reach the height of the higher Alpine peaks of Europe. Still higher peaks are found in the extreme north-west. Active volcanoes occur only in the north-west (Alaska) and in the south (Mexico and Central America).

---

[1] Hence no proper plough could be used. The instrument which was used for a plough by the ancient Peruvians (see p. 350) is described as 'a strong, sharp-pointed stake, traversed by a horizontal piece ten or twelve inches from the point, on which the ploughman might set his foot and force it into the ground. Six or eight strong men were attached by ropes to the stake, and dragged it forcibly along, pulling together, and keeping time as they moved by chanting their national songs, in which they were accompanied by the women, who followed in their train to break up the sods with their rakes.'—PRESCOTT, *Conquest of Peru.*

[2] See section across North America, p. 63.

The only other great mountain system of North America is that of the **Appalachian**, or Alleghany Mountains, which extend in long parallel chains in the same general direction as the Atlantic coast.

A chain of magnificent lakes (**Lakes Superior, Michigan, Huron, Erie, Ontario**) lying between the two great mountain systems is drained by the St. Lawrence into the Atlantic.

Lake Superior is the largest body of fresh water in the world, its area about 1,000 square miles greater than that of Scotland with its adjacent islands, its length (rather more than 350 miles) almost exactly the same as that of a line drawn from Berwick-on-Tweed due south to the coast of England. Farther north are numerous lakes, large and small, often very irregular in outline, presenting a marked correspondence to the lakes of Finland. Of the larger of these lakes, however (**Great Bear Lake, Great Slave Lake, Athabasca, Winnipeg**), even the smallest greatly exceeds in size the largest of those of Finland.

The great **rivers** of the plain are of the highest importance as waterways,[1] and the minor rivers of the east are likewise of great service to internal communication, inasmuch as their valleys intersect the chains of the Appalachians, and so form a number of gaps, which have facilitated the laying of roads and railways across these mountains, as the openings between the minor chains of the Rocky Mountains have facilitated their construction right across the continent.[2]

In accordance with the general correspondence between North America and Eurasia, the **climate** of the west of the former continent answers to that of Western Europe, that of the east to that of Eastern Asia; but the climate of the east of North America is not so severe as that of Eastern Asia, while, in consequence of the superior warming effect of the Gulf Stream Drift as compared with the Kuro Siwo Drift, the west coast is not so mild as in corresponding latitudes of Europe.[3] Hence the most populous (warm temperate) regions of the east in America

---

[1] See pp. 327-8, 330-1.

[2] The first Pacific Railway—that is, the first railway crossing the broader part of the American continent—was completed on May 10, 1869.

[3] See Introd. p. 47.

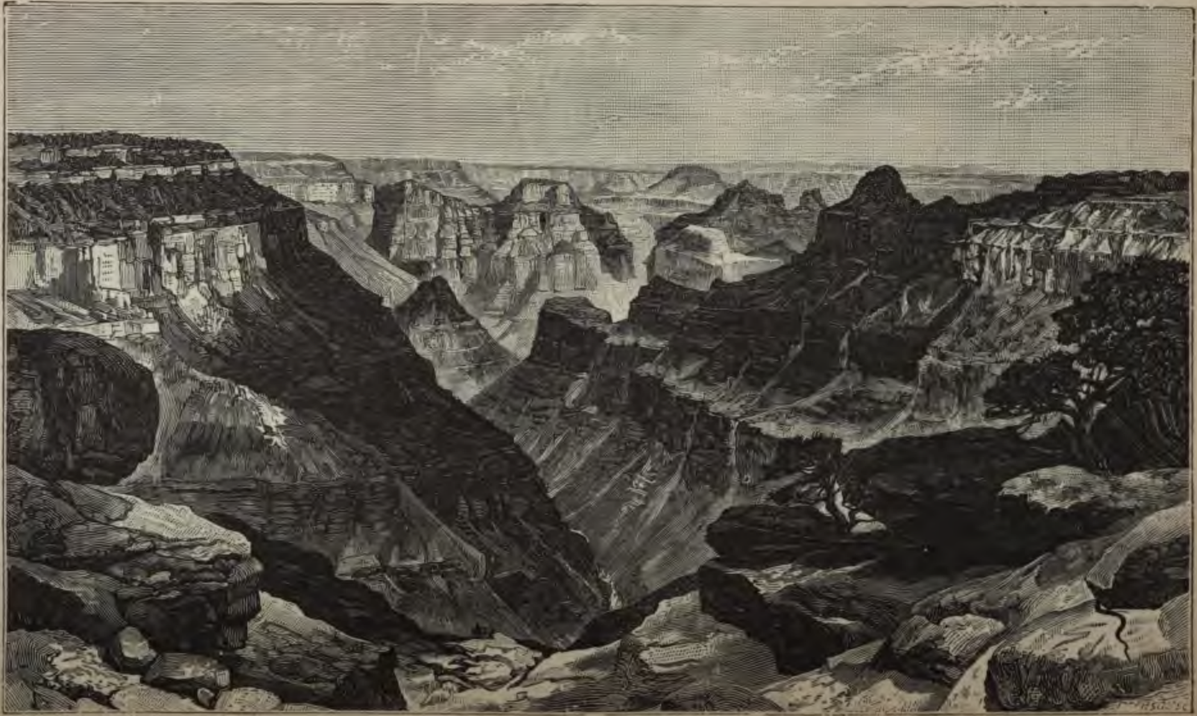


Fig. 56.—Scene in the Cañon Region of the United States. See p. 336.

are somewhat farther north than the corresponding regions of Eastern Asia, those of the west of North America somewhat farther south than the corresponding regions of Europe.[1]

Important differences in climate are due to the direction of the mountain chains. The Rocky Mountains, shutting off the moisture from the Pacific, cause a large part of the interior of the north of the United States to be too dry for agriculture without irrigation, and the open plain between these mountains and the Appalachians allows even the most southerly points of the United States, as well as the east coast of Mexico, to be swept from time to time, like Southern Russia, by icy winds from the north,[2] so that ice forms at the mouth of the Mississippi, in lat. 30° N.; and even in the extreme south of Texas (lat. 26° N., about the same latitude as that of Patna, in Bengal), as much as nine degrees of frost has sometimes been experienced.

The dry plains of the interior, the **prairies**, are almost treeless except near the river banks. In some parts, however, the true prairies, there is an abundance of rich grasses which once afforded food to vast herds of the **American bison**,[3] the so-called buffalo, an animal ruthlessly shot down and now nearly extinct. The still drier parts of the plains are the home of another misnamed animal, the burrowing **prairie-dog**,[4] and where it haunts the scene, thick-stemmed, fantastic-looking, leafless but bright-flowered **cactuses**,[5] resembling the African euphorbias, generally form the most conspicuous vegetation. In these drier regions clouds of **locusts** and other noxious insects not infrequently commit their ravages, and now and then their devastations extend even into the regions of cultivated fields.

COUNTRIES OF NORTH AMERICA.

1. GREENLAND AND THE ARCTIC ARCHIPELAGO.— Greenland is a large mass of land or group of islands (it is uncertain which), almost completely buried under ice, which reaches in some parts to at least ten thousand feet above sea-level, and which in the numerous fiords [1] of the coast has its ends broken off to form icebergs.[2] The east and south coasts are difficult of approach on account of the pack-ice by which they are constantly fringed, and the only settlements therefore are upon the west coast. These belong to the Danes.

---

[1] Note the latitudes mentioned at the head of this section.

[2] Called in the United States, 'Northers'; in Mexico, 'Nortes.' Comp. p. 52 (3) (*a*).

[3] See p. 267.

[4] This small creature, though it barks like a dog, is more like a squirrel, though without the bushy tail. In some places the prairies are all honeycombed with its burrows, and dotted over with the little mounds which it builds, and on which it is in the habit of sitting erect on the watch like an Alpine marmot.

[5] See cut, p. 156.

The inhabitants are mostly **Eskimo**, who live, like their unsettled kinsmen of the more northerly parts of Greenland and on the north coasts of the mainland of America, chiefly by seal and whale fishing, pursuing these animals in peculiar boats called *kayaks*. Between Greenland and the Arctic Archipelago lies **Baffin's Bay**, with **Smith Sound** and its continuations, by means of which the nearest approach has yet been made to the North Pole.[3] Only one or two of the islands of the Archipelago are inhabited (by Eskimo). Between them a **North-west Passage** to eastern Asia was sought for centuries in vain, and, though a passage was at last effected by M'Clure between 1850 and 1853, the route is too encumbered by ice to be of any use for commerce.

2. BRITISH AMERICA.—A. **The Dominion of Canada**, north of the United States, from which it is separated partly by the middle line of the four northern great lakes, partly (west of the Lake of the Woods) by the parallel of 49° N. It embraces a territory upwards of three millions of square miles in extent, but the populous portion of this vast area is confined to the region south of the St. Lawrence, together with the land on the north adjacent to that river and to the great lakes from Quebec to lat. 42° N.

The lake peninsula which lies between Lake Huron (with the Georgian Bay) on the one side, and Lakes Erie and Ontario on the other, and ends at the latitude just mentioned, has an area of less than 20,000 square miles, and yet, at the last census, contained about two-sevenths of the entire population of the Dominion, even though it had not one inland town with 20,000 inhabitants.[4] The whole of the populous area lies at least two degrees further south than the southernmost point of England, but from two to six degrees further north than Manchuria, which may be considered the corresponding region of Asia.

The **surface** is generally low-lying east of the Rocky Mountains, and **toundras** similar to those of northern Russia and Siberia cover large tracts in the north, descending in the east to the southern shores of Hudson's Bay, and still farther east along the whole coast of Labrador. There next follows a region of vast forests, chiefly of pines and firs, amongst which the principal products in the north-west are, as in the corresponding latitudes of Russia and Siberia, **furs**; and in the south-east, timber, or, as it is called in America, **lumber**, which is floated in immense quantities down the smaller streams to the larger ones, the Ottawa and St. Lawrence, and by these to Quebec, whence it is exported to Europe and elsewhere.

---

[1] See p. 228.

[2] See Introd. p. 54–5.

[3] By the British expedition under Nares in 1876, 83° 20′ N.; by the United States expedition under Greely in 1883, 83° 24′ N.

[4] Nevertheless, the density of population in this peninsula was only about 65 to the square mile—less than that in any county of England or Wales except Radnor.

South of the forest region there lies in the west, between the Rocky Mountains and the Great Lakes, an area of level plains or gently rising table-lands almost destitute of trees—the commencement of the American prairies. These plains contain tracts of the highest importance for the future development of the Canadian Dominion. Though part of this area is covered with a barren soil which forbids all hope of cultivation (at least for many years to come), there are still larger areas, chiefly along the **Red River** (which enters Lake Winnipeg from the south) round **Lakes Winnipeg** and **Manitoba**, and in the valley of the **Saskatchewan**, where the soil is of the richest description, and the climate, though very different from that of England, is admirably adapted for agriculture. Two feet of snow may cover the ground from December to March, but the warm summers are sufficient to ripen wheat in three or four months.

The average number of bushels of wheat to the acre grown on these rich soils with very little manure is about twenty-eight, or only about one bushel less than in England, and higher than in any other country for which statistical information is obtainable. **Coal** also is among the products of this region and is already worked at more than one place.

For the development of this region, so remote from the markets of Europe, the natural waterways of the Dominion are of the highest importance. From the mouth of the St. Lawrence, it is possible for ships to ascend, with the aid of a few canals, to the head of Lake Superior, and thence with little interruption the journey by water may be continued by **Rainy Lake and River**, and **Winnipeg Lake and River**, to the head waters of the Saskatchewan, a distance of 4,500 miles in all. One of the interruptions to navigation (avoided by a canal) on this system of water-ways is formed by the **Falls of Niagara**, at which a river more than half a mile wide, forming the connection between

Lakes Erie and Ontario, is precipitated over a cliff upwards of 150 feet in height. Railways have been laid in the intervals where water communication does not exist, and the completion of the Canadian Pacific Railway[1] is sure to have an important effect on the prosperity of this region. The northern rivers of Canada, the **Mackenzie, Peace,** and **Athabasca,** and **Great Fish River,** have their course interrupted by too many rapids and falls to be of much use as waterways, but this is of less consequence since they empty themselves into a scarcely accessible sea. It is a more serious disadvantage that the **Nelson River**, the outlet of Lake Winnipeg to Hudson's Bay, has its navigation interrupted in the same way (except for 100 miles above its mouth), for the navigation of that wide inlet, though difficult, is believed to be practicable, and this route is the shortest from Liverpool to the Canadian north-west. The construction of a railway from Winnipeg to a port on Hudson's Bay has accordingly been commenced.

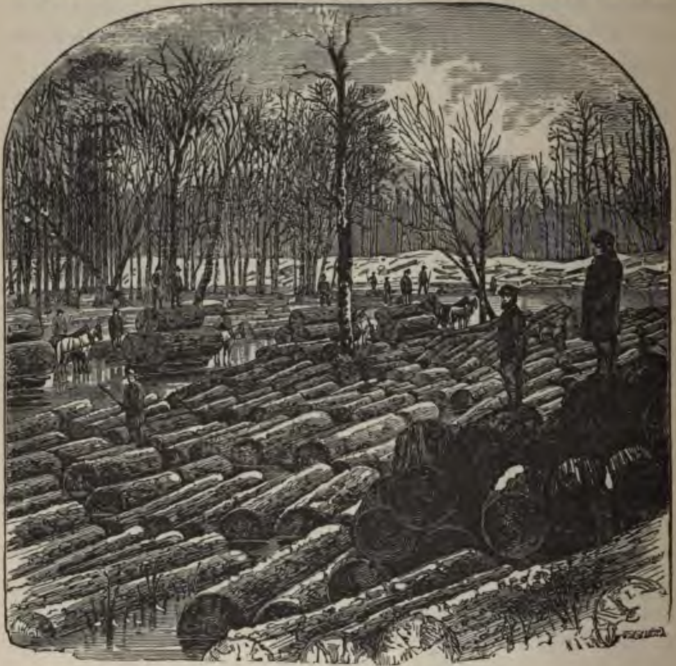


FIG. 57.—A 'LUMBERING' SCENE, CANADA.

The **people** of Canada are **mainly of British origin** and Protestant in religion; but French Roman Catholics make up about one-third of the population, chiefly in the east (Quebec, &c.), those regions having been originally colonised by the French, from whom they were gained by the English in 1759. There are about 100,000 **Indians**, most of whom are hunters roaming over the forest regions of the north-west, and living by the sale of furs to the fur-trading companies.

---

[1] The Canadian Pacific Railway was completed in November, 1885

The Dominion, though having a general government and parliament for the common affairs, is divided into a number of provinces, each of which has a parliament of its own, to deal with matters of local interest, but there is a large territory on both sides of Hudson's Bay which is not so organised. The seat of the general government is **Ottawa**, a town with about 30,000 inhabitants, situated on the river of the same name, about ninety miles above its confluence with the St. Lawrence.

Provinces and Towns.—(1) **Nova Scotia** (in the time of the French Acadie), a province including both the peninsula of that name and the island of **Cape Breton**, in the north: in all about two-thirds of the size of Scotland. It is rich in **coal**, and has extensive **fisheries**. Capital, **Halifax**, on the east coast.

(2) **Prince Edward Island**, about the size of the county of Norfolk, in the bay between New Brunswick and Nova Scotia, south of the Gulf of St. Lawrence.

(3) **New Brunswick**, rather less than Scotland, rich in forests and minerals (coal and iron), and with valuable fisheries, and extensive ship-building. Capital, **Fredericton**, in the interior; largest town, **St. John's**, on the Bay of Fundy.

(4) **Quebec**, on both sides of the St. Lawrence, mostly east of the Ottawa, twice the size of Great Britain. The winter is very long, the sleighing season lasting five months. Capital, **Quebec**, originally on, now partly on and partly round. a commanding promontory at the junction of the Charles River and St. Lawrence; the head-quarters of French Canada.[1] **MONTREAL**, 150 miles higher up the St. Lawrence, at the head of the ocean navigation of that river, and the eastern end of the canals which avoid the rapids of the St. Lawrence;[2] a characteristically British town, rapidly growing in prosperity;[3] it is the chief seaport of the Dominion.

(5) **Ontario**, rather larger than Great Britain, with a shorter winter than Quebec (sleighing season two months). It is remarkably rich in petroleum. Capital, **TORONTO**, on Lake Ontario, another highly prosperous town,[4] about 300 miles above Montreal; at the west end of Lake

---

[1] The capture of Quebec by General Wolfe in 1759 secured for the English the possession of French Canada.

[2] The St. Lawrence is here spanned by a railway bridge nearly two miles long (including abutments).

[3] Its population in 1881 was 141,000; in 1861, 90,000; while that of Quebec was in 1881 only 62,500, as against 60,000 in 1861.

[4] Population in 1881, 86,000; in 1861, 45,000.

Ontario, **Hamilton**; in the middle of one of the richest parts of the lake peninsula, **London**.

(6) **Manitoba**,[1] the rich agricultural province of the west; capital, **Winnipeg**, on the Red River, where it is joined by the Assiniboine.[2]

(7) **British Columbia**, four times the size of Great Britain, occupying the dry table-land of the Rocky Mountains, with the moist mild strip of coast, and the islands to the west. The principal wealth of the province consists in its minerals and forests. The discovery of gold first brought a rush of settlers here in 1856.[3] The forests on the western or Coast Range of the Rocky Mountains, consisting of gigantic pine and fir-trees, are among the finest in the world. Capital, **Victoria**, at the southern end of Vancouver's Island.

(8) The districts of **Assiniboia, Saskatchewan, Alberta,** and **Athabasca,** between British Columbia and Manitoba, have been united under one government with a separate legislature under the name of the North-West Territories. The capital is **Regina**, on the Canadian Pacific Railway, to the south of the Qu'Appelle River. In the extreme north-west a large region traversed by the Yukon River has been organised as the Yukon Territory. It is in this region, not far from the Alaskan frontier, that the celebrated **Klondike** goldfield has been opened up, with the city of **Dawson**, on the Yukon, as its centre.

B. Newfoundland, a separate colony, to which also belongs the dreary and scarcely inhabited Atlantic coast of Labrador. The island is about one-fourth larger than Ireland. It may be called the Yezo of North America, though situated about six degrees farther north than that island.[4] Like Yezo, it is washed by a cold current on the east, which brings with it a great abundance of food-fishes,[5] and the inhabitants are chiefly fishermen, settled on the coast. The cod fisheries on the bank of Newfoundland, a shallow to the south-east, are the largest in the world. They are carried on in summer and autumn. Capital, **St. John's**, on the east coast.

C. The Bermudas, a group of small islands about 750 miles south of Nova Scotia, producing tropical and temperate fruits, and frequented by invalids for the sake of their equable climate.

3. **UNITED STATES.**—A brief account of the surface is given in the general description of North America, and here it need only be added that almost the whole of the vast plain between the Rocky Mountains and the Appalachians is drained into the Gulf of Mexico by the Mississippi and its tributaries, all of which are of the highest importance as channels of commerce.

The **Mississippi** itself is navigable from St. Paul, in Minnesota; and all its great tributaries—the **Ohio**, with the **Tennessee** on the left bank,

---

[1] Population of province in 1881, 66.000; in 1871, 12,000.

[2] See Introd., p. 61 (2) (*a*)

[3] Comp. California, p. 337, and Australia, p. 83.

[4] See above, p. 300, and pp. 323-5.

[5] See Introd., p. 49.

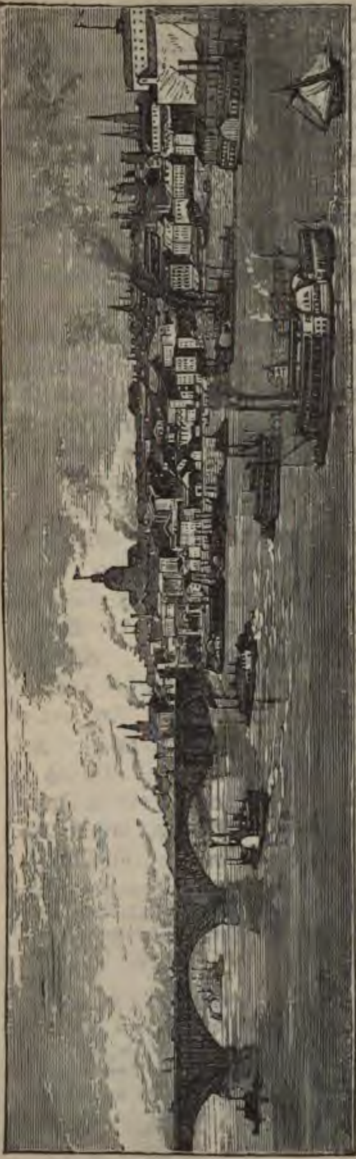


FIG. 53.—VIEW OF ST. LOUIS WITH THE LOWEST BRIDGE ON THE MISSISSIPPI.

and the **Red River**, the **Arkansas**, and the **Missouri** on the right—are navigable for hundreds of miles (the Missouri for more than two thousand miles) above their confluence with the main stream. The rivers of the Atlantic coast, with the exception of the **Hudson**, are of less importance as navigable streams; but, nevertheless, are of great value to commerce, as forming, like the rivers of Britain, fine harbours in their estuaries.

The principal **products** of the United States are **food supplies and raw materials of manufacture** for the industrial populations of Europe, and above all of the United Kingdom. From one-half to two-thirds of the **wheat, flour, maize, raw cotton,** and live cattle, and nearly four-fifths of the meat imported into the United Kingdom, come from the United States.

Of the food grains, **maize** is the principal, being well adapted for the warm and dry, but not rainless, summers that characterise the greater part of the agricultural region. The amount of this crop grown is between three and four times more than the amount of wheat, but **wheat is the great export crop**, nearly one-third of the total quantity grown being sent on an average out of the country.

The mineral wealth of the United States is also enormous. Coal, iron, petroleum, copper, quicksilver, and the precious metals,[1] are all found in extraordinary abundance. The total area of the productive coal-fields of the United States is estimated at nearly 200,000 square miles, or from fifteen to twenty times as much as that of the European coal-fields. At present the production of coal is most abundant in Pennsylvania and along the west of the Appalachian Mountains from Ohio to Alabama.

The government of the United States is republican, the head of the state being an elected president, and the legislative body an elected parliament called the Congress. Each of the states, however, is a separate republic so far as its own local affairs are concerned, whence the term United States. Originally British Colonies, the communities constituting the nucleus of the present United States declared their independence in 1776, and ultimately formed thirteen original states.[2] Since then the territory has grown by acquisitions from France (Louisiana, &c.), Spain (California, Florida, &c.), and Mexico (Texas), and now consists of forty-two states, besides seven territories, which have not the same amount of local independence as the states.

In accordance with this origin the people are mainly of British descent, and the majority of immigrants are from the British Isles. About one-eighth of the people are negroes, originally introduced as slaves. The descendants of the native Indians are now few in number. Some are settled among the rest of the people, and pay taxes to the general government (civilised Indians), while others still live independent on allotments of land, the chief of which is the Indian territory north of Texas. Protestantism is the prevailing religion. Education is a matter left to the individual states, but is generally well provided for.

---

[1] The production of gold and silver in the United States exceeds that of any other country in the world. Australia and Russia are its rivals in the production of gold, but in the production of silver it is without a rival, the production of Mexico (which comes next in this respect) being not much more than half that of the United States.

[2] The thirteen original states are four of the six New England States—New Hampshire, Massachusetts, Rhode Island, Connecticut—together with New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North and South Carolina, Georgia. Of the two New England States which were not members of the original confederation, Maine was a part of Massachusetts till 1820, and Vermont was not admitted into the Confederation till 1791, two years after the adoption of the Constitution by the last of the thirteen original states.

With regard to its climate and productions, the territory of the United States may be divided into four regions, two east and two west of the meridian of 100° W.

A. The North-east.—North of the Ohio and Delaware Bay, comprising among others the New England States.[1]

In this region the inhabitants are almost all of European origin, and the products are similar to those of Europe. The eastern portion of it is the most densely peopled part of the United States, and that in which **manufacturing industries** are most highly developed, so that a large part of the agricultural population is migrating hence to the regions of the west, whither the surplus population of Europe is flocking. In the north **sugar**[2] is largely obtained from the sap of a species of maple.

Towns.—(a) On or near the Coast.—At the mouth of the Hudson, opposite the lower end of Long Island, **NEW YORK**, the largest town in the New World, containing with its suburbs of **BROOKLYN**[3] (on Long Island, also in the state of New York), and **JERSEY CITY** (New Jersey), on opposite sides of its harbour, a population of above two millions. As a seaport it ranks next after Liverpool and London. At the head of sea navigation on the Delaware, ninety miles south-west of New York, **PHILADELPHIA** (Pennsylvania; with suburbs 900) the second largest town in the United States; on Massachusetts Bay, 200 miles north-east of New York, **BOSTON** (Massachusetts; with suburbs 450), the centre of culture in the United States, its suburb Cambridge containing **Harvard College**, the oldest college in the United States, now forming the University of Cambridge; about twenty-five miles inland, **Lowell**, chief seat of American cotton manufactures, hence sometimes known as the 'American Manchester.'

(b) On or near the Great Lakes.—At the east end of Lake Erie, **BUFFALO** (New York), the terminus of the Erie canal, with a great trade in grain and timber; on the south side of the same lake, **CLEVELAND** (Ohio), with extensive iron and other works; **DETROIT**[4] (Michigan), opposite the extremity of the lake peninsula of Canada; **CHICAGO** (Illinois, 550), at the head of Lake Michigan, unrivalled for its trade in grain, animal products, and timber, and remarkable for its rapid rise, its site having been occupied in 1830 by only about a dozen families; **MILWAUKEE** (Wisconsin), on the west coast of the same lake, with a trade similar to that of Chicago.

---

[1] See note 2, p. 332.

[2] In many parts of the United States a species of sorghum (a grain allied to the durrah of Africa) is grown for the sake of a sugary syrup obtained from it. Most of the sugar produced in the United States, however, is derived from the sugar cane. Sugar beet (see p. 194, *n.* 1) is scarcely grown at all.

[3] Now connected with New York by a bridge.

[4] Originally a French town; hence the French name, meaning 'strait.'

(c) On the Mississippi and its Tributaries.—In Minnesota, at the head of continuous steam navigation on the Mississippi, **ST. PAUL**, a rapidly rising seat of trade, and close beside it **MINNEAPOLIS**, an equally prosperous city, which owes the rise of its vast flour-milling industry chiefly to the water-power afforded by the falls of St. Anthony; a little below the confluence of the Mississippi and Missouri **ST. LOUIS** (Missouri, 450), another town remarkable for the rapidity of its rise, situated at the lowest point at which the Mississippi is bridged[1]; at the point where two headwaters unite to form the Ohio lie the contiguous towns of **PITTSBURG** and **Alleghany** (Pennsylvania), in the centre of a region yielding coal, iron, and petroleum in great abundance; near the most northerly point of the great northern bend of the Ohio, at the head of navigation for the larger Mississippi steamers, **CINCINNATI** (Ohio; 300 with suburbs), a great centre of trade and manufactures.

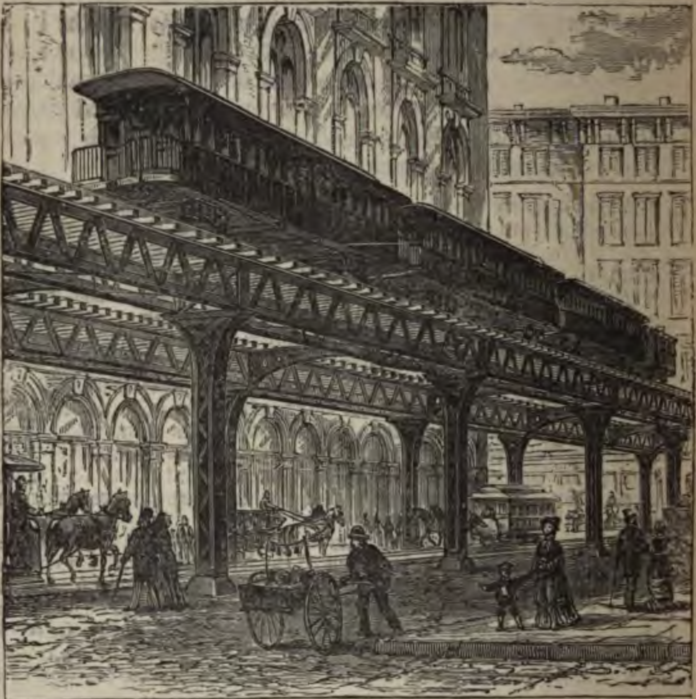


FIG. 59.—AN ELEVATED STREET RAILWAY, NEW YORK.

---

[1] See Introd. p. 61 (2) (*b*) and (*c*).

B. The south-east, a region in which **tobacco and cotton are grown as staples,** and in which negroes form a large proportion of the population, in the states on both sides of the Lower Mississippi even outnumbering the people of European descent. The tobacco[1] district lies in the north (extending even into the region north of the Ohio), the cotton district in the south. Among other characteristic crops are **rice** in the swamps of Carolina, **sugar-cane**[2] in Louisiana, and **oranges** in Florida. The last state is also celebrated as a resort for invalids on account of its remarkably equable though moist climate. The rainfall of this region, at least in the south-east, is much heavier than to the north of the Ohio, and occurs mainly in summer; the prevailing winds having a monsoon character,[3] in summer from, in winter towards, the Gulf of Mexico.

Four towns in this region have a population exceeding 100,000. Near the head of the fine inlet of Chesapeake Bay, **BALTIMORE** (Maryland, 330) with a large trade in tobacco and cotton; at the head of the estuary of the Potomac, which opens into Chesapeake Bay, **WASHINGTON,** the seat of Congress, in a small district called the District of Columbia, not belonging to any state; near the mouth of the Mississippi, **NEW ORLEANS** (Louisiana, 220), the chief cotton port in the United States; on the left or south bank of the Ohio, **LOUISVILLE** (Kentucky), centre of the tobacco trade. **Richmond** (Virginia), on the James River, **Charleston** (South Carolina), and **Savannah** (Georgia), all on the east coast, are important seaports, the first exporting chiefly tobacco, the other two cotton.

C. The region between 100° and 120° W. (mostly table-land, but partly low-lying prairie), comprising an area of about 1,200,000 square miles (about ten times as great as the British Isles), may be known as the **arid region of the United States,** inasmuch as throughout this whole area (except in the neighbourhood of mountains)[4] the rainfall is too scanty for agriculture without irrigation. The region is hence extremely thinly populated, containing on an average only about two persons for every three square miles, and, except in the mining districts, the white inhabitants are chiefly ranchmen—that is, employed in cattle-rearing on a great scale.

The principal mines in this region are of silver, in Colorado and

---

[1] Tobacco is grown more or less in the great majority of the states.

[2] See p. 333 *n.* 2.

[3] See Introd. p. 42, and comp. pp. 266.

[4] See Introd. p. 52 (3) (*a*).

Montana. Next to these States Nevada and Utah Territory produce the greatest quantity of silver.

A large part of the region between the **Sierra Nevada** in the west and the **Wahsatch Mountains** in the east, is an area of inland drainage known as the **Great Basin**, near the east of which is the **Great Salt Lake** (Utah), at the height of 4,200 feet above sea-level. Adjoining this lake, the Mormons[1] have their settlement round **Salt Lake City.** Vast tracts of this region are absolutely desert, these being situated principally in the south-west on different sides of the Rio Colorado (**Mohave, Cila and Painted Deserts**). The last-mentioned desert takes its name from the extraordinary character of the scenery. There the rivers (Coloradoand its tributaries) have their beds sunk in tremendous gorges with precipitous sides (**cañons**), such as are represented in the cut on p. 325; but the effect of the scenery there delineated is enhanced by the dazzling colouring of the rocks, on which 'we behold belts of fierce staring red, yellow, and toned white, which are intensified rather than alleviated by alternating bands of dark iron grey.' Farther north is another remarkable area known as the **Yellowstone Region,** in which tremendous geysers and numerous boiling springs are found along with cañons and 'painted' rocks. Amidst the deserts of the south-west, far from the present seats of civilisation, remains have been discovered proving that here, at some remote period, there must

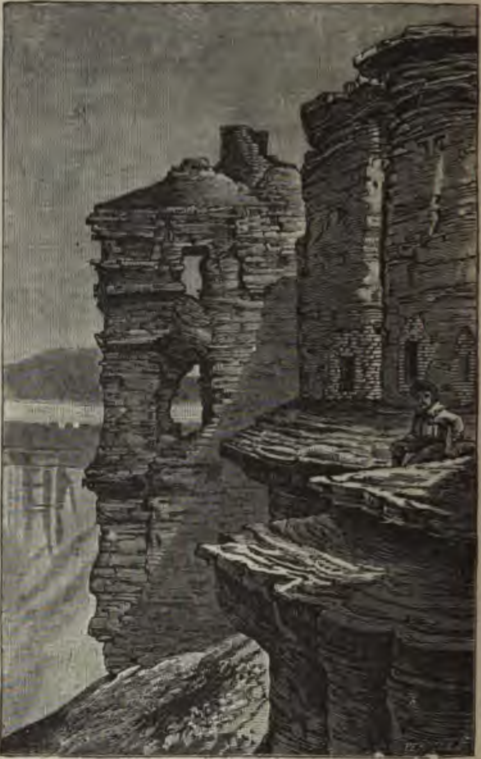


FIG. 60.—ABODES OF ANCIENT CLIFF-DWELLERS BELONGING TO THE ARID REGION, UNITED STATES.

---

[1] A peculiar religious sect which sanctions polygamy.

have dwelt a pretty thick population, who had their abodes in caves on the cliffs, no doubt for security.

D. The Pacific Coast.—In this section of the United States the climate is like that of the Mediterranean region, the summer nearly rainless, the winter mild. Gold, which first attracted a large population to this part of the world, is still an important product; but the fine **Californian valley**, watered by the **Sacramento** in the north and the **San Joaquin** in the south, now teems with wheat, maize, wine, and southern fruits.

On the mountains, the **forest scenery** of this region is highly remarkable. Favoured by copious rains, the western slopes of the mountains are crowded with gigantic cone-bearing trees—firs and pines, besides two species of Sequoia,[1] the red-wood, and the mammoth tree, the latter of which is rivalled in height and girth only by some of the gum-trees or Eucalypti of Australia. An enormous timber-trade has grown up round the fine inlet of **Puget Sound** (Washington Territory), in the north of this region.

The only large town is **SAN FRANCISCO** (California, 300), on one of the finest natural harbours on the west coast of America. Among its population is a considerable proportion of Chinese, who exhibit here the same untiring industry as elsewhere, but who are regarded with great disfavour by the labouring population of the United States, chiefly on account of the low rate of wages for which they work.

Alaska is a thinly peopled territory producing chiefly furs. It is traversed by a magnificent river, the **Yukon**, which pours into the sea half as much water again as the Mississippi.

4. **MEXICO**, which lies to the south of the United States, between about 32° and 15° N., has a total area equal to between eight and nine times that of Great Britain; but the northern part forms a continuation of the arid and desert region of the United States.[2] The densest population is found on the portion to the south of the tropic of Cancer, and more particularly on a portion of the **plateau of Anahuac**, which lies at an elevation of 7,500 feet above sea-level. Here, on an area about equal to that of Great Britain, is settled at least two-fifths of the entire population.

This elevated table-land, surrounded by mountains, many of which are the cones of active or extinct volcanoes, forms what is called the **cold region** of Mexico, and **temperate** and **warm regions** are successively entered as one descends the outer slopes of the mountains that bound it. On the table-land there is a marked contrast between a rainy season (in our summer months) and a dry season throughout the rest of the year. But in the lower levels, with their tropical heat, rain falls from time to time, even in the dry season. Among the lowlands the outlying thinly populated peninsula of **Yucatan** has a dry climate almost at all times. On the table-lands the **products**, in consequence of the elevation, are not unlike those of Europe—**maize** (the principal food of the people) and even wheat and barley; but there is one product that has always formed a very marked feature of Mexican agriculture. This is the **agave or American aloe**, grown chiefly for its sap, which when fermented yields the favourite drink of the Mexican people, called **pulque**. In the lowlands are grown coffee and cacao, sugar, tobacco vanilla. On the table-land irrigation is necessary, and the Spanish settlers have constructed great aqueducts similar to those which have existed in Spain since Roman times. **Silver** is found in great abundance in many places. (See p. 332 *n* **1.**)

---

[1] Sequoias, now confined to this region, were in a recent geological epoch very widespread, their remains having been found in Japan and Greenland as well as in England. The Mammoth Tree grows in a strip of forest two hundred miles in length, and towards the southern extremity the forest is composed entirely of this one tree.

[2] See p. 335-6.

Railways are still few, but an important addition to the railway system has recently been made by the completion of the line across the northern desert connecting Mexico with the railways of the United States, and another important railway is now in progress across the Isthmus of Tehuantepec, where the Rocky Mountains become narrowed to a single chain little more than 4,000 feet in height.

Among the **people** the dominant race consists of Europeans of Spanish origin (**Creoles**), but these are greatly outnumbered by natives and mixed breeds (**Mestizoes**). Hundreds of years before the arrival of Europeans the plateau of Anahuac was the centre of powerful native empires—first, that of the **Toltecs**, then of the **Aztecs**—and monuments of both still remain scattered over Mexico and Central America. The empire of the Aztecs was overthrown by Cortez in 1521, and till the present century Mexico remained a Spanish dependency, but ultimately the people, following the example of the British colonists in North America, threw off the yoke of the mother country, and founded a federal republic (1824).

The only town with more than 100,000 inhabitants is **MEXICO** (250), on the Lake of Tezcuco, and three with more than 50,000, **Guadalajara, Guanajuato,** and **Puebla**, are all situated, like Mexico, on the table-land. **Vera Cruz**, on the Gulf of Mexico, is the chief seaport.

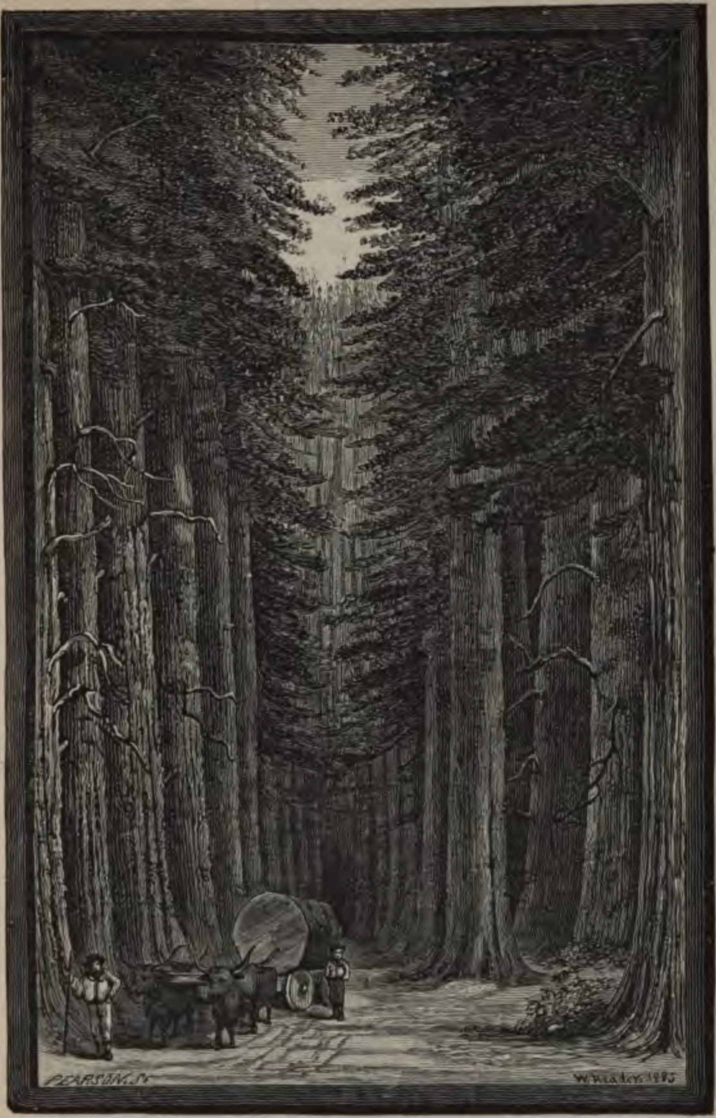


FIG. 61.—SCENE IN A FOREST OF GIANT CONIFERS ON THE SIERRA NEVADA, U.S.

5. CENTRAL AMERICA.—The territory to the south of Mexico is chiefly divided among five small republics, **Guatemala**, **San Salvador**, **Honduras**, **Nicaragua**, and **Costa Rica**, the largest of which have an area little more than half that of Great Britain, while the population does not in any case exceed 1,500,000.

The general character of the surface is similar to that of Mexico, but the elevation is on the whole lower. The elements of the population are also much the same as in the latter state. The **products** are those of the tropical parts of Mexico, **coffee** being the chief, though **indigo**, **india-rubber**, and various drugs, are of importance. Valuable **timber** and **dyewoods** are obtained from the forests, and **Belize**, in British Honduras, the only place with a good harbour on the Atlantic coast, is a great place of export for **mahogany**. British Honduras is a crown colony, with an area equal to about that of the counties of York and Durham taken together, and a population of about 25,000. **Guatemala** is the largest town in Central America.

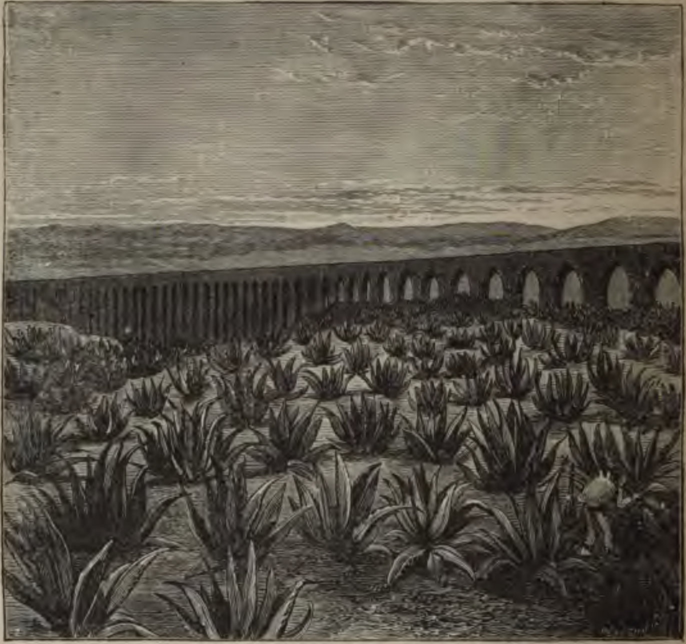


FIG. 62.—AN AGAVE PLANTATION. MEXICO.
(By the kind permission of Mr. Coles, Curator of the Map Department, Royal Geographical Society.)

6. WEST INDIES, a group of islands with a situation similar to that of the Eastern Archipelago, but differing from the latter in that they all lie to the north of the equator, and in having a much smaller aggregate area.

Their whole area is not much larger than that of Great Britain, or only about one-third of that of the island of Borneo. Their total population is about four millions, the two largest islands, Cuba and Hayti, being very thinly populated.

The group is divided into the **Greater Antilles** in the west, the **Lesser Antilles** in the east.

All the islands except the **Bahamas**, which are flat coral islands, are more or less mountainous. The mountains, and higher parts of the islands generally, are covered with dense woods, to which palms and tree-ferns give the prevailing aspect, though mahogany, ebony, and other valuable timber trees are also numerous. In accordance with their tropical situation, they have a dry alternating with a rainy season. The former occurs during our winter months, when the trade-wind blows strongly over the group; the latter during our summer, when the trade-wind moves farther north in consequence of the higher position of the sun. During the month of September, when the sea is at its hottest, the winds are very variable, and **hurricanes**[1] are then most frequent.

The **chief food of the people** is derived from the fleshy underground parts of three different plants, **manioc,**[2] **yams, and sweet potatoes,**[3] and the **chief plantation crops** (grown for export) are **sugar, coffee, and tobacco.** Mineral products are of little importance, and the only important product from the animal kingdom is sponges[4] obtained from the banks of the Bahamas.

The **population** is entirely descended from natives of other continents—Europe, Africa, and Asia. At the time of their discovery by Columbus[5] the West Indies were inhabited by a pretty dense population, principally gentle Arawaks and wild and warlike Caribs, but on most of the islands the natives were speedily exterminated through the barbarities of the invaders.[1] Hence a large proportion of the inhabitants are the descendants of negroes, originally slaves, but now all free. Indian and Chinese coolies[2] have been introduced as labourers since the liberation of the negroes, in consequence of the unwillingness of free negroes to work.

---

[1] See Introd. p. 41.

[2] See p. 304.

[3] A plant allied to the convolvulus, and totally different from what is now called the potato. It was this plant, however, that was first known as the potato, that name being a corruption of a word of unknown origin (*batatas*) designating the sweet potato.

[4] Sponges consist of a horny skeleton of a kind of animal, the living part of which consists of a slimy substance investing the skeleton.

[5] The first land reached by Columbus in the New World was one of the Bahamas, probably Watling Island.

Till 1898 all the islands except Hayti, which is divided between the **Republic of Hayti** in the west and that of **San Domingo** in the east, belonged to European Powers—Spain, Great Britain, France, the Netherlands, and Denmark; but in that year Spain was compelled to renounce hers after a war with the United States.

1. **Former Spanish Possessions**: (1) **Cuba**, noted for its tobacco as well as its sugar. Its most populous part is in the west, where on a fine bay on the north coast is situated the capital, **HAVANA** (230), the only large town in the whole archipelago. (2) **Porto Rico**, in which coffee is the product next in importance after sugar.

2. **To Great Britain belong**: (1) **Jamaica**, south of eastern Cuba, in which, besides **sugar** and **coffee**, **pimento**[3] is an important product; chief port, Kingston, on the south coast. (2) **The Bahamas.** (3) **The Leeward Islands,**[4] composed of all the British Islands between Porto Rico and Dominica, and including the latter. The principal products of the group are sugar, limes, tamarinds, and arrowroot. (4) **The Windward Islands,**[4] including all the islands between Martinique and Trinidad; principal, **Grenada.** (5) **Barbados**, the most densely peopled of the West India Islands, where accordingly the negroes are obliged to work in order to gain a subsistence. (6) **Trinidad**, an island about six times the size of Anglesey, opposite the delta of the Orinoco, with a rich soil in the west, producing **sugar** and **cacao**, and remarkable for the possession of a large asphalt lake in the interior.

3. **To France** belong the islands of **Guadeloupe** and **Martinique**, besides some smaller islands.

4. **To the Netherlands** belong the three considerable islands of **Curaçao**, **Aruba**, and **Bonaire**, or Buen Aire, along the north coast of Venezuela, besides two smaller islands and half of a third among those of the British Leeward group.

5. **To Denmark** belong Santa Cruz, St. Thomas, and one or two other islands among the Virgin group.

---

[1] On the island of Porto Rico, no natives survived forty years after the advent of the Spaniards. [2] See p. 284. [3] Also known as *Jamaica pepper* and *allspice*.

[4] This use of the terms Leeward and Windward Islands is confined to Britain, and is quite inappropriate to the facts of the case. There is better justification for other two uses of the names adopted elsewhere. Some geographers apply the name Windward Islands to the Lesser Antilles, as being directly exposed to the trade-winds; that of Leeward Islands to the Greater Antilles. By others, again, the latter name is applied to the islands along the north coast of Venezuela.

SOUTH AMERICA.

Approximate latitudes: Caraccas (Saigon), 10° N.; Quito (Stanley Falls, middle of Sumatra), 0°; Rio de Janeiro, 23° S.; Buenos Ayres (Adelaide), 35°.
Approximate longitudes: 35° to 82° W.

South America has an area about twice that of Europe, and has its broadest part, in all four-fifths of its area, within the torrid zone. The **Andes or Cordilleras**, the longest chain of mountains in the world, traverses its whole length parallel to the west coast, with only a few breaches made by river valleys near its southern extremity. The southern part of this system is single, unless the mountains of the islands that here fringe the Chilian coast be considered as belonging to the Andes; but north of that fringe two chains can generally be made out more or less distinctly, and about the point where the coast begins to trend north-westwards the main chains diverge most widely and enclose a table-land varying from 11,000 to 16,000 feet in height, and about 400 miles in breadth.[1] The chains again converge towards the equator, a little to the north of which the system divides into three, enclosing elevated valleys which gradually slope towards the north, and are drained by two rivers, the **Magdalena** and **Cauca**, which unite before falling into the **Caribbean Sea**. The greater part of the system is highly volcanic, and the whole coast which they face is subject to earthquakes. The highest summit in the chain is believed to be **Aconcagua**, about 32° S., which attains an elevation of more than 22,000 feet.

A short range running parallel to the north coast east of the Lower Magdalena takes the name of **Sierra Nevada** (or Snowy Sierra) **of Santa Maria**, from containing peaks clothed with perpetual snow, but it is the only range in South America not belonging to the Andes which reaches that limit. Two table-lands crowned with mountain ranges, whose general direction is also parallel to the nearest coast, occupy the north-east (Guiana and Venezuela) and the east, and between these and the Andes stretch the great plains of South America drained by the three great rivers, the **Orinoco**, the **Amazon**, and the **Paraguay** (of which last the Lower **Parana** forms a continuation). These rivers are all magnificent navigable streams. The **Orinoco**, which describes a semicircular course with one side prolonged to its mouth, is navigable for nearly 1,000 miles; the Parana and Paraguay are navigable continuously to the interior of Brazil; and the Amazon is more important than either in this respect, being navigable without interruption for 2,600 miles from its mouth, while 6,000 miles of navigation in all are afforded by the main stream and its tributaries. All the main tributaries of this river and the Paraguay, including the upper part of the course of the Parana, have their navigation more or less interrupted by falls and cataracts.

---

[1] See section in diagram, p. 68.

The climate of South America is greatly affected by the chain of the Andes, the two sides of which present striking contrasts as regards rainfall and vegetation everywhere except in the extreme north. In the north copious rains with a rich tropical vegetation occur on both sides; the eastern plains of this region, forming the **Llanos** of the Lower Orinoco, are flooded during the rainy season (our summer), and during the dry season, before they become quite parched, present to view chiefly vast expanses of grass, though they are no longer so treeless as they were described by Humboldt in the early part of the present century.

The contrast of climate begins about 4° S. Thence to about 30° S. the east (trade) winds, which blow from the Atlantic for the greater part of the year, deluge the eastern slopes of the Andes with rain, and cover them with dense forests as high as trees can reach. Dense tropical forests (**selvas**) likewise occupy the valley of the Amazon to its mouth. South of the Amazon, however, the Brazilian coast mountains deprive the Atlantic winds of much of their moisture, so that the table-lands and plains intervening between them and the Andes (the **campos** of Brazil and the northern part of the **Gran Chaco**) have only a scanty rainfall. On the west of the Andes, between the latitudes mentioned, no rain whatever falls except high up on the mountain sides, and moisture appears on the low grounds only in the form of mist (**garua**). Vegetation is consequently scanty except beside the rivers, and for six or seven degrees north of 28° S. the strip of coast is a desolate wilderness. South of latitude 30° S., the contrast is opposite to that just described. There the prevailing winds are from the north-west, and bring plenteous rains from equatorial seas to the western slopes of the Andes, and still farther south to the lowlands at their base; while on the eastern side, the plains (the treeless **Pampas** of the Argentine Confederation and the bleak steppes of Patagonia) get drier and drier as one goes southwards. In this southern part, the western slopes of the Andes are as densely clothed with forests as the eastern slopes farther north; but the abundance of

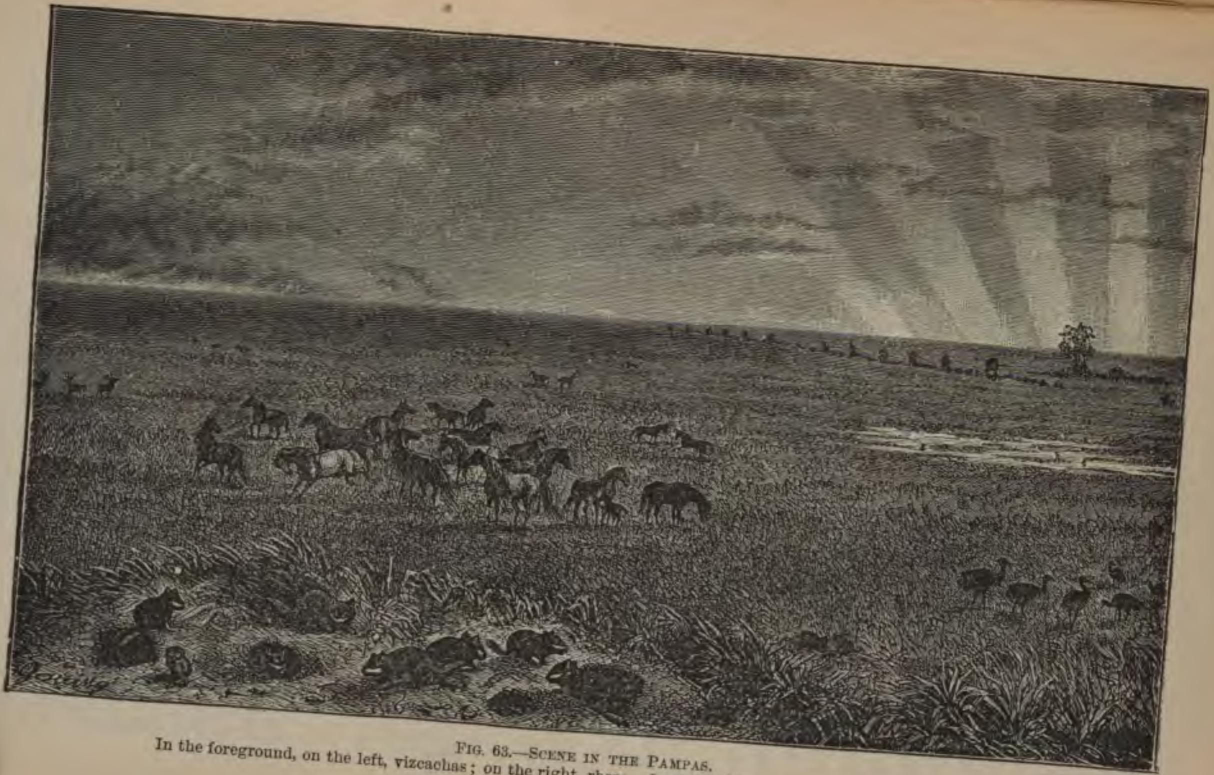


FIG. 63.—SCENE IN THE PAMPAS.
In the foreground, on the left, vizcachas; on the right, rheas. In the middle distance, on the left, pampas deer.

moisture has the effect of suddenly depressing the snow-line, which is between 8,000 and 9,000 feet lower behind the island of Chiloe (about latitude 40°) than it is seven degrees farther north.[1]

The **animal world** of South America is surprisingly different from that of the rest of the globe, even from that of the neighbouring continent on the north—one proof among others that the two halves of the New World were separated from each other by water down to a comparatively recent geological period. Here and here alone are to be found great numbers of **monkeys living entirely on trees** and provided with tails which can be used in grasping, **blood-sucking bats, sloths, armadillos, llamas,** and **alpacas,** a large number of gnawing animals like the rabbit (one of which, the **vizcacha,** burrows underground like the prairie-dog, and is as abundant in the plains of the south as the latter animal is in parts of North America), besides a greater variety of **parrots** and **humming-birds** than are found elsewhere. The latter birds are absolutely confined to the New World. The **rhea,** a peculiar kind of ostrich, is to be seen on the southern plains.

The **population** is still very scanty; according to the best estimate that can be formed, only about 36,000,000, or about one-eleventh of that of Europe. Four-tenths of the population are estimated to be native Indians, two-tenths whites, one-tenth negroes (chiefly in Brazil), and the remainder mixed races, so that on the whole the Indian element still largely predominates. The white population in Brazil is of Portuguese origin, but elsewhere, except in Guiana, chiefly of Spanish descent, almost the whole continent having been divided between Spain and Portugal early in the sixteenth century.

The enervating effect of the climate in the tropical portion of the continent has retarded the development of the immense resources of the land, notwithstanding the facilities presented by the navigable streams; and it is believed by some that Chinese labour alone can bring wealth and prosperity to these burning lands. In spite of the fact that the land has been so long in the hands of Europeans, it is said that there are not in all South America at the present day 100 miles of what in Europe would be called roads. Railways are now of more importance, and there are in Peru two of the most remarkable railways in the world, 'the railways in the clouds' as they have been called, since they ascend to the plateaux between the chains of the Andes, one from Lima to Oroya attaining a height of 15,600 feet.

---

[1] See Introd. p. 58.

SOUTH AMERICAN STATES.

1. **BRAZIL**, on the east side of the continent, formerly governed by an emperor, but proclaimed a republic by the name of the United States of Brazil in November 1889. In size it is the rival of the United States and Canada. (See table, p. 354.) The **population** is about 12,000,000, the great majority of whom are either negroes or partly of negro descent. Many of the negroes were slaves down to the year 1888, when slavery was abolished. The population is densest in the coast provinces south of the equator. The interior is chiefly occupied by wandering native tribes. In tropical Brazil are grown all kinds of tropical products, but the **great staples** are **manioc, coffee,**[1] and **sugar**, the two latter for export.

The poisonous tubers of the manioc, when bruised and heated, yield tapioca, the principal food of large numbers of the people. **Cacao** and **india-rubber**[2] are important products of the north. Among the hills in the portion of Brazil outside of the tropics (only about one-fifteenth of the whole), numerous **German colonies** have been founded and to these **Italian colonies** have more recently been added.

The principal towns of Brazil are on the coast. The capital is **RIO DE JANEIRO** (with suburbs, 275), situated on one of the most beautiful land-locked bays in the world, forming an excellent harbour. South of the equator the portion of the coast of Brazil exposed to the south-east trade-wind is flat, surf-beaten, and in many places bordered by sand-dunes;[3] and **BAHIA**, or San Salvador, and **PERNAMBUCO** are the only important seaports. The latter owes its origin to the protection afforded by a natural breakwater, or reef, which gives it another name, **Recife** (reef). North of the equator, the coast, like the whole of the north-east coast of the continent, is bordered by shallow mud-flats, generally bearing mangroves.[4]

2. Colonial **GUIANA**[5] consists of three portions—one British, about equal to Great Britain in size; one Dutch (**Surinam**); and one French (**Cayenne**), each of the two latter rather more than half the size of Great Britain.

They are all engaged in the production of sugar, rum, and molasses. The labourers are negroes, mulattoes, and coolies. The capital of British Guiana is **Georgetown**, at the mouth of the Demerara.

3. **VENEZUELA**, a federal republic in the north of the continent, consisting chiefly of the basin of the Orinoco; population

---

[1] Half the coffee produced in the world, though not the best, is grown in Brazil.

[2] Obtained here chiefly from a tall tree allied to the manioc shrub, not from the twining plant from which it is obtained in Africa.

[3] See Introd. p. 25.

[4] See cut, p. 58

[5] Part of Guiana belongs to Brazil and Venezuela.

more than 2,000,000, the majority of whom are settled on a small area in the north-west beyond the basin of the Orinoco, along the north and north-western slopes of the branch of the Andes, which here runs north-eastwards through the territory.

People of Spanish, Indian, and negro descent, all now free, make up the population. The staple product is coffee; but cacao, cotton, tobacco, and sugar, besides other tropical products, are grown. Gold and copper are important minerals. The llanos of the Orinoco are devoted to cattle- and horse-rearing, but the number of the live-stock has greatly declined compared with what it once was. Capital, **Caraccas**; chief ports, **La Guayra** and **Porto Cabello.**

4. **COLOMBIA,** a federal republic in the north-west, extending as far south as the equator, with a population of more than 3,000,000, chiefly settled in the upper parts of the valleys of the Cauca and Magdalena, where in consequence of the high elevation the grains of temperate climates are grown.

Bogota, the capital, at the height of 8,000 feet, has, though less than five degrees north of the equator, a very healthy climate, with a temperature like that of a perpetual spring. The mineral wealth is great, and gold and precious stones take a leading place among the exports, which also include Peruvian bark,[1] coffee, cacao, &c. The great channel of communication is the Magdalena, which is navigable as high as **Honda,** between 500 and 600 miles from its mouth. As yet there are few railways, but one of these is of high importance as forming the shortest connection between the shipping of the Atlantic and Pacific. The **Isthmus of Panama** belongs to Colombia, and here a depression in the mountains has allowed of the construction of a railway across the isthmus, at the height of 260 feet at the highest point, from **Colon,** or **Aspinwall,** on the Atlantic side, with its population of English negroes, to **Panama,** on the Pacific side, with its population of Spanish negroes. Through the same unhealthy depression an attempt is now being made to pierce a ship-canal.

5. **ECUADOR,**[2] a republic chiefly south of the equator, but which owes its name to the fact that its capital, Quito, is almost under that line. The population is little more than 1,000,000, nearly all settled on the plateau between the chains of the Andes.

Quito, situated at an elevation of between 9,000 and 10,000 feet, has a temperature all the year round like that of our May. The only port is **Guayaquil,** whence cacao, grown on the western lowlands, is exported. To Ecuador belong the **Galápagos,** or Turtle Islands, a group situated on the equator, about 700 miles to the west.

---

[1] The bark of the cinchona tree, from which quinine, a valuable drug, is obtained.

[2] Spanish = Equator.

6. **PERU**, a republic lying to the south of Ecuador, with a population of about 3,000,000, at least half of whom are pure Indians. It is composed of three zones—(1) a barren **coast-strip** fertilised only here and there by rivers from the Andes, on the banks of which sugar plantations are tended by Chinese coolies; (2) the **sierra**, or valleys and table-lands of the Andes; on one of the highest of the table-lands lies **Lake Titicaca**, the largest lake in South America, at the height of 12,600 feet above the sea; and (3) the **Montaña**, the region on the eastern slopes of the Andes, containing the head-waters of the Amazon, a region largely covered with impenetrable forests, of which the most valuable product is **Peruvian bark**. There are valuable **silver** mines and deposits of **guano**[1] and **nitrate of soda**.

FIG. 64.—SCENE IN HONDA, COLOMBIA. (By the kind permission of Messrs. Hachette.)

The guano and nitrate of soda, which are both used for manure, are found on the coast-strip, the rainlessness of which (see p. 344) has allowed of the accumulation of these deposits. The silver mines belong to the Andes, the principal being at **Cerro de Pasco**, the highest town in the world—upwards of 14,000 feet above sea-level.

The capital is **LIMA**, an unhealthy city on the coast strip, a few miles from its port, **Callao**.

---

[1] Guano consists of the droppings of sea-birds.

Before its conquest by the Spaniards, under Pizarro in 1532, the empire of Peru, now one of the worst governed republics of South America, was the centre of the empire of the Incas, which extended over a large part of South America, and was in some respects even more remarkable than that of the Aztecs of Mexico. Under it the country was provided with fine roads, aqueducts, and irrigation works (some of which can be utilised at the present day); and the government, though highly despotic, regulating the whole life of the people, was yet a mild despotism, and one that ensured the well-being of its subjects. Remarkable architectural monuments of this empire still survive at **Cuzco**, the residence of the Incas, as well as round Lake Titicaca and elsewhere.

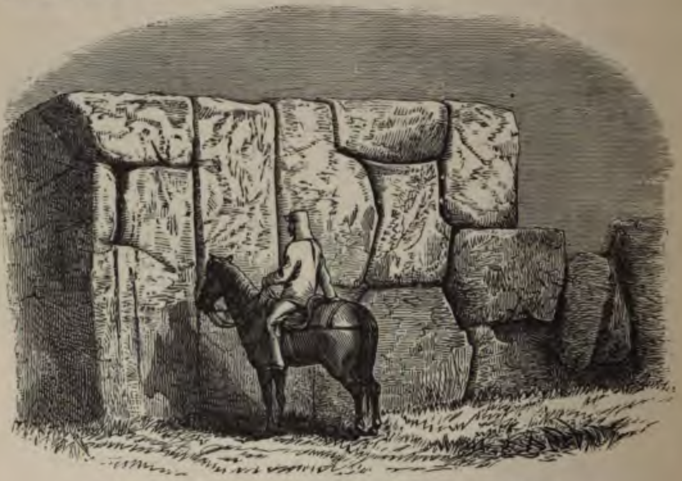


FIG. 65.—FRAGMENT OF AN OLD PERUVIAN WALL, CUZCO.
(By the kind permission of Messrs. Hachette.)

7. BOLIVIA, formerly called Upper Peru, takes its present name from Bolivar, the leader in the movement by which the Spanish states in South America threw off the yoke of the mother country. It is now entirely an inland state occupying the broadest part of the table-land of the Andes, with a **montaña** to the east. The Bolivian montaña is drained by the **Madeira,**[1] the principal tributary of the Amazon on its right bank, but this tributary has its navigation interrupted by falls and rapids for about 200 miles between Bolivia and Brazil.

The silver mines of **Potosi**, which made Peru so valuable a possession to the Spaniards, belong to this state and are still productive, though they no longer yield such enormous quantities of the precious metal as they supplied in former times. The chief towns of the republic are **La Paz**, on the table-land of Lake Titicaca (part of which belongs to Bolivia), and **Sucre**, near the eastern borders of the Andes.

---

[1] So called on account of the forests which it traverses. See p. 150 *n.* 2.

8. **CHILE**, a republic possessing the whole of the coast strip south of Peru, together with the islands that fringe that coast, including part of Tierra del Fuego and all the land on both sides of the Straits of Magellan. The **Araucanians**, a warlike native tribe, which long maintained its independence, have now been subdued, and their territory incorporated with that of the republic. The northern portion of the country is part of the desert strip ot South America, which owes all its value to its deposits of nitrate of soda. The middle portion (between about 33° and 38° S.) contains the bulk of the population, among whom whites predominate. The field products are **wheat** and southern fruits, and wheat forms a considerable export. The mountains yield metals, especially **copper**; the northern desert furnishes **guano** as well as **nitrate of soda.** The population is about 2,500,000.

The capital is **Santiago**, on a fertile plain, the chief port **VALPARAISO**, built on a fine bay looking towards the north.

9. **ARGENTINE REPUBLIC**, a state occupying a territory of more than 1,000,000 square miles, with a population of about 4,000,000. Its territory consists of a vast plain sloping down to the Atlantic from the mountains in the west and north-west, and the provinces in which the population is most considerable and most rapidly increasing are chiefly those in the neighbourhood of the estuary of La Plata and along the banks of the Lower Parana. Each province has a separate government for local affairs.

In the pampas of the province of **Buenos Ayres**, south of that estuary, in **Cordoba** to the north-west, and in **Entre Rios**, 'between the rivers' Parana and Uruguay, the dominant industry of the whole Republic, the rearing of sheep and cattle, is chiefly carried on. In the production of **wool**, the Argentine Republic ranks next after Australia. Besides wool, wheat, frozen mutton, and hides are the principal exports. Vast herds of cattle and horses roaming over unfenced prairies are managed by mounted shepherds called **Gauchos**, expert in the use of the lasso. In the **province of Santa Fé**, on the right bank of the Parana, tillage is rapidly extending, through the foundation by immigrants of agricultural colonies, which have of late years raised the Republic to the rank of a **wheat-exporting** state.

Patagonia, which is included in the territory belonging to the Argentine Republic, is mainly a stony desert, on which a few Indians (remarkable for their high stature) live by hunting the rhea and guanaco and by fishing.

The capital of the Republic is **Buenos Ayres**, which is also the chief seaport. It lies on the shallow, nearly tideless estuary of La Plata, and, though now provided with a large and deep harbour, was formerly inaccessible for ocean ships. **Rosario**, on the Parana, has become a great wheat port.

10. **URUGUAY**, a republic lying north of the estuary of La Plata, in which the chief occupations of the people are the same as in the Argentine Confederation. The population is about 700,000. The wool of Uruguay and the Argentine Confederation, generally known as **River Plate wool**, is mainly exported to France, Germany, and Belgium, in Europe, and to the United States, very little indeed being used in Great Britain. The wool is fine in staple, but generally shorter than that of Australia, and being, in consequence of the nature of the grasses on which the sheep are pastured, mixed with seeds and other vegetable matter, requires to be treated with special machinery, such as is not generally used in the United Kingdom.

The capital is **MONTEVIDEO**, which has the best accommodation for shipping on the La Plata, but is less favourably situated than Buenos Ayres for internal trade.

11. **PARAGUAY**, an inland republic lying mainly between the Paraguay and Parana rivers, with a very sparse population, chiefly of native Indians.

Its chief product is the so-called **Paraguay tea**, or **mate**,[2] which is generally used in the southern parts of South America as a substitute for tea and coffee, and is also grown in the neighbouring states to the south.

The islands of **Tierra del Fuego**, with a cold and dripping climate, are inhabited by a small number of natives in the lowest stage of barbarism. The **Straits of Magellan**,[3] by which they are separated from the mainland, are stormy and washed by strong tides and hence difficult of navigation, so that sailing vessels still prefer the equally stormy, but, for them, less dangerous, route round Cape Horn.

The Falkland Islands, situated to the east of the Straits of Magellan, belong to the British.

---

[1] Even at the mouth of the estuary to the south of Montevideo, the depth is nowhere greater than thirty-six feet. The rise of the tide is from four to six feet. Greater differences in the level of the water of the estuary are sometimes produced by winds—continued southerly winds causing a rise of eight feet above the ordinary level; continued northerly winds a fall of four feet.

[2] Derived from a bush allied to the holly.

[3] So called because discovered and first navigated by a Portuguese navigator named Magalhaens in the first voyage round the world (1519–21). Magellan is the Spanish form of the name, and has been generally adopted because at the time of the voyage this seaman was in Spanish service.

ANTARCTIC REGIONS.

Compared with the Arctic regions, those round the Antarctic pole are remarkable for the uniformity of their low temperatures. To the south of 62° S. the mean temperature of both sea and air is at or below the freezing-point of fresh water even in summer. Still nearer the south pole, ice barriers have stopped the advance of explorers at a latitude of about five degrees lower than that attained in the Arctic regions. Till lately the highest latitude reached in southern seas was 78° 10′ S., where the progress of Sir James Ross was arrested in 1842, after he had sailed along an icy barrier about 400 miles in length, and from 150 to 200 feet in height. He had previously sighted land, the coast of which he traced from the parallel of 72°. To this land, the most extensive that has been seen in the Antarctic regions, he gave the name of **Victoria Land**, and on it he observed in the course of his voyage an active volcano, **Mt. Erebus**, nearly 13,000 feet in height. But though Victoria Land is the most extensive piece of Antarctic land that has actually been seen, the swarms of icebergs in Antarctic seas, and the deposits of terrestrial origin that have been found in the vicinity of the ice barriers of the south, afford the clearest evidence of the existence of an Antarctic continent. In 1900 it was announced that the expedition under Mr. Borchgrevink had succeeded in reaching 78° 50′ S. Several other expeditions to the Antarctic are now in preparation.

AREA AND POPULATION IN ROUND NUMBERS OF THE PRINCIPAL STATES OF EUROPE AND THE MORE POPULOUS COUNTRIES OF OTHER CONTINENTS.

	Area in Thousands of Square Miles (1890).	Ratio to Great Britain.	Population in Millions about 1880.	Population about 1880 per Square Mile.	Population in Millions about 1890.[1]	Population about 1890 per Square Mile.
Australasian Colonies. See p. 337	...	...	...	...	...	...
Austrian Empire	242	2⅔	38	157	39·7	164
Belgium	11·4	⅛	5·5	487	6·0	523
Brazil	3,200	36	12	4	...	...
Canadian Dominion	3,470	39	4·3	1·3	4·9	1·5
Cape Colony	277	3	1·2	5·1	2·0	7
China (proper)	1,550	17	...	...	430	278
Denmark	15·4[2]	⅙	2	128	2·2	141
Egypt	13[3]	⅐	6·8	530	8·3	650
France	206	2⅓	38	185	38·7	188
German Empire	209	2⅓	45	217	49·4[4]	237
Bavaria	29	⅓	5·3	180	5·6[4]	191
Prussia	134	1½	27	200	30·0[4]	223
Saxony	5·8	1/15	3·0	515	3·5[4]	604
Würtemberg	7·5	1/12	2·0	260	2·0[4]	271
Greece	25	2/7	2	80	2·3	91
India[5]	1,380	15	250	194	277[7]	201
British India[6]	944	9½	199[8]	227	220[7]	233
Italy	111	1¼	28·5	257	30	271
Japan	150	1⅔	37	247	40	267
Mexico	750	8½	10	13	10·5	14
Netherlands[9]	12·5	⅐	4	315	4·6	364
Norway	126	1⅖	1·9	16	2·0	16
Portugal	34	⅓	4·1	120	5·2	150
Roumania	51	5/9	5·4	106	5·5	108
Russia[10]	2,045	23	85	41	99	48
Servia	19	⅕	1·8	97	2·1	112
Spain	196	2⅕	17	88	17·8	90
Sweden	174	2	4·6	26	4·8	28
Switzerland	16	⅕	2·8	177	3·0	185
Turkey in Europe	59	⅔	4·5	70	...	...
Bulgaria and Eastern Roumelia	40	4/9	2·8	70	...	...
United Kingdom	121	1⅓	35	290	38	316
United States[11]	3,000	33⅓	50	17	62·5[4]	21

[1] Mainly estimates.

[2] Exclusive of Iceland, but inclusive of Faroe Islands.

[3] Exclusive of desert.

[4] Census 1890.

[5] Exclusive of Burma, Nepál, Bhután, and Manipur.

[6] Inclusive of Burma.

[7] Census 1891.

[8] Exclusive of Upper Burma.

[9] Exclusive of Luxemburg.

[10] Including Finland.

[11] Exclusive of Alaska.

INDEX.

CONTRACTIONS.

Af. Africa.
A.R. Argentine Republic.
Arch. Archipelago.
Aust. Austria.
Br. British.
Braz. Brazil.
Br.Col. British Columbia.
C. Cape.
Cent. Am. Central America.
Ch. China.
Co. County.
Col. Colony.
Ct. Coast.
des. desert.
dist. district.
div. division.
emp. empire.
Eng. England.
For. Forest.
For. pos. Foreign Possessions.
Harb. Harbour.
Hg.-Kg. Hong-Kong
I. Island.
I.-C. Indo-China.
Ind. India.
Ir. Ireland.
Is. Islands.
isth. isthmus.
Jam. Jamaica.
kgd. kingdom.
L. Lake.
lang. language.
Mesop. Mesopotamia.
Mex. Mexico.
Mts. Mountains.
N. A. North America.
Nn. Northern.
N. S. Nova Scotia.
N. Zd. New Zealand
P. Pass.
Pal. Palestine.
pop. population.
pr. prov. province.
Prus. Prussia.
Qd. Queensland.
R. River.
rep. republic
Rus. Russia.
S. South.
Sc. Scotland.
Sd. Sound.
Sp. Spain.
st. state.
Str. Strait.
Sur. Surrey.
Sus. Sussex.
Syr. Syria.
Tas. Tasmania.
tn. town.
trib. tributary.
U. S. United States.
W. A. West Australia.
W. I. West Indies.

AACHEN, 193.
Aapjies, R., 135.
Aar, R., 31, 62, 206, 209.
Abana, R., 270.
Aberdeen, 107.
Aberdeen, Sc., 175.
Aberdeen div., 102.
Abruzzi, 240, 246.
Abyssinia, 150.
Acadie, 329.
Aconcagua, 343.
Adda, R., 243.
Adelaide, 109.
Adelaide, W. A., 308, 311.
Aden, 166, 274, 284.
Adige, R., 204, 206, 216.
Admiralty Is., 256.
Adria, 242.
Adrianople, 248, 253.
Adriatic Sea, 206, 211, 242, 248.
Ægean Sea, 249, 251, 255.
Ægina, Gulf of, 254.
Æmilian Road, 240, 243.
Afghanistan, 275.
Africa, Eastern, 148–150.
Africa, South, 68–141.
Africa, North and Mid., 142–148.
Africa, West, 144.
Agra, 285.
Agram, 218.
Agulhas Bank, 69.
Agulhas, C., 68.
Ahmedabad, 286.
Aix-la-Chapelle, 193.
Ajaccio, 184.
Ajmir, 284.
Akabah, Gulf of, 272.
Alabama, 334.
Alashehr, 269.
Alaska, 28, 323, 330, 337
Albania, 251, 253, 255.
Albanians, 251.
Albany, 311.
Albury, 309.
Aleppo, 270, 271.
Aletsch Glacier, 202.
Alexandretta, 270.
Algeciras, Bay of, 237.
Algoa Bay, 69.
Alice, 109.
Alicante, 237.
Aliwal, North, 95, 110.
Allahabad, 285.
Alleghany Mts., 323.
Alleghany, tn., 334.
Allier, R., 176.
Almaden, 234.
Almeria, 237.
Alps, Bernese, 202.
Alps, Maritime, 204.
Alps, Passes across, 204, 205.
Alps, The, 34, 53, 176, 200, 205, 210, 240.
Alps of Valais, 202.
Alpine tunnels, 205.
Alsace-Lorraine, 195, 196, 199.
Altai Mts., 62, 262.
Altona, 197.
Amadeus, L., 305.
Amager, Is., 232.
Amatola, Mt., 100.
Amazon basin, 62.
Amazon, R., 27 *n.* 1, 343, 344, 350.
America, 35 *n.* 3, 60, 317, 321.
America, Central, 323, 340.
America, North, 24, 25, 28, 36, 41, 51, 57, 58, 322, 325.
America, South, 24, 40, 46, 48, 52, 58, 343, 352.
Amiens, 181.
Amritsar, 281, 286.
Amsterdam, 190.
Amu, R., 265, 299.
Amur, R., 262.
Anahuac, plat., 337.
Anam, 256, 289.
Anamese, 261.
Ancona, 246.
Andalusia, 237, 238.
Andaman Is., 284.
Andes, 34, 259, 343.
Andorra, 237.
Angara, R., 264.
Angers, 182.
Angkor Wat., 289.
Anglesey, 167.
Angora, 268.
Angra Junta, 137.
Angra Pequeña, 137.
Anhalt, 196 *n.* 1.
Anjou, 182.
Annobon, 256.
Annobon I., 151.
Antananarivo, 151.
Antarctic Circle, 20.
Antarctic Ocean, 24, 55.
Antarctic Regions, 353.
Anti-cyclone, 41.
Anti-Lebanon, 269, 270.
Antilles, 341.
Anti-Taurus, 268.
Antioch, 270.
Anti-trades, 40, 41.
Antwerp, 189.
Aosta, 204.
Apennines, 240.
Apia, 320.
Appalachian Mts., 35, 323, 332.
Apuan Hills, 241.
Apulia, 240, 246.
Aquitania, 182 *n.* 3.
Arabia, 256, 257, 273.
Arabs, 241, 290, 305.
Aracan, 288.
Aragon, 234, 239.
Aral, Sea of, 260, 265.
Aranjuez, 238.
Ararat, Mt., 267.
Aras, R., 266, 267.
Araucanians, 351.
Arawaks, 341.

Arcadia, 249.
Archangel, 221, 225.
Arctic Arch., 225.
Arctic Circle, 20.
Arctic Ocean, 24, 55, 219.
Ardennes, 178.
Arelate, 183.
Argentine Rep., 351.
Argolis, 250.
Argonnes, For. of, 178.
Argos, 255.
Arkansas R., 331.
Arles, 183.
Armenia, 266, 267.
Armenians, 252, 267.
Arnauts, 251.
Arno, R., 240, 244.
Artesian Wells, 30, 145.
Artois, 30.
Aruba, 256, 342.
Aryans, 261, 275, 282.
Asaba, 146.
Ascension Is., 151.
Ashanti, 146.
Asia, 36 *n.*, 257–301.
Asia Minor, 35, 256, 268.
Aspinwall, 348.
Assab, 150, 256.
Assam, 280, 284.
Assyria, 59.
Astrakhan, 220, 221, 225.
Asturias, 234, 238.
Atbara, R., 143.
Athabasca, L., 323.
Athabasca, R., 327, 328.
Athens, 254.
Atlantic Ocean, 39, 44, 46, 49, 56.
Atlas, Great, 144.
Atlas, Little, 144, 145.
Atlas Mts., 144, 145, 146.
Atmosphere, 38.
Atolls, 33 *n.*
Attica, 254.
Auckland Is., 313.
Auckland, N. Zd., 315.
Augsburg, 199.
Australia, 42, 48, 51, 52, 60, 165, 332 *n.* 1, 302, 308.
Australian Alps, 303, 308.
Australasian Colonies, the, 308.
Australians, Native, 306.
Austria, 195, 200.
Austria-Hungary, 210–218.
Austria, Lower, prov., 205, 210, 215.
Austria, Upper, prov., 210, 215.
Austrian Empire, 354.
Auvergne, 35, 177, 183, 192.
Avignon, 183.
Azof, Sea of, 219.
Azores Is., 150, 256.

BAB-EL-MANDEB, Str. of, 48, 274.
Babylon, 25, 59, 272.
Baden, Grand Duchy, 195, 196.
Baffin's Bay, 326.
Bagamoyo, 149.
Bagdad, 272.
Bahamas, 341, 342.
Bahia, 347.
Bahia Blanca, 302.
Bahr-el-Abiad, 65 *n.* 2.
Bahr-el-Azrek, 65.
Bahr-Yusuf, 142.
Baikal, L., 259, 263.
Bain's Kloof, 99.
Baku, 266.
Balaton, L., 212.
Bâle, 192 *n.* 2.
Balearic Is., 240.
Bali, 258, 316.
Balkan Mts., 250.
Balkan Peninsula, 233, 248–255, 257, 258.
Balkhash Lake, 260, 265.
Ballarat, 309.
Baltic Sea, 43, 48, 229.
Baltic, Tides of, 45.
Baltimore, 335.
Baluchistan, 275.
Banat, 211.
Banca, 292.
Bangkok, 288.
Bangweolo, L., 65.
Bangalore, 286.
Banks Penins., 315.
Bar (of a river), 27.
Baralongs, the, 119.
Barada, R., 270.
Barbados, 342.
Barberton, 95, 136.
Barcelona, 237.
Barcoo, R., 305.
Bardez, 256.
Barka, 144.
Barkly, West, 110.
Barmen, 193.
Baroda, st., 283.
Barotse, 126.
Basel, 192, 194, 209.
Bashee, R., 102.
Basin (of a river), 26.
Basques, 182, 238.
Basque Provs., 234.
Basra, 272.
Bass Strait, 312.
Bastia, 184.
Basutoland, 88, 91, 122, 123, 165.
Batavia, 292.
Bath, 174.
Bathurst, 309.
Batlapins, the, 119.
Batum, 266.
Bavaria, 191, 195, 196, 199, 216, 354.
Bayonne, 182.
Bazaruta, I., 140.
Beaconsfield, 110.
Beaufort West, 107.
Bechuanaland, 88, 117–122.
Bechuana Land, 165.
Bedford, 109.
Behring's Strait, 24, 48.
Beira, 140.
Beirut, 270.
Belfast, 163, 176.
Belgium, 184–190, 195, 354.
Belgium, Towns in, 189–190.
Belgrade, 254.
Belize, 340.
Belt, Great, 231.
Belt, Little, 231.
Benares, 285.
Bengal, 277, 281, 282, 284.
Bengal, Bay of, 42, 278.
Benguela, 148.
Benguela, Is., 140
Ben Nevis, 169.
Berar, 284, 286.
Berbera, 150.
Berbers, the, 144, 145.
Berea, dist., 123.
Bergen, 230.
Berg, R., 77, 102.
Berlin, 196, 198.
Bermudas, 165, 330.
Bern, 200, 209.
Besançon, 183.
Bessarabia, 226.
Bethlehem, 131.
Bethlehem, Pal., 270.
Bethulie, 131.
Beypur, 278.
Bhamo, 288.
Bhutan, 283, 287.
Bias, R., 285.
Bienne, L., 31 *n.* 5, 208.
Biggarsberg Mts., 113.
Bilbao, 238.
Biled-ul-Jerid, 145, 309.
Bingen, 192.
Bird Islands, 110.
Birmingham, 174.
Biscay, prov., 238.
Bismarck Arch., 256, 318.
Blaauwberg, 105.
Blaauwberg Mts., 133.
Black Dome, Mt., 62.
Black Earth, Rus., 222, 226.
Black Forest, 191, 194, 200.
Black Sea, 42, 48, 206, 219, 242, 252, 266.
Blanc, Mt., 200, 202.
Blantyre, 127.
Bloemfontein, 130.
Bloemhof, 129.
Blue Mts., 309.
Bluff Harbour, 315.
Bochetta Pass, 244.
Bodensee, 206.
Bogong, Mt., 308.
Bogota, 348.
Bohemia, 180, 195, 210, 211, 214, 215.
Bohemian Forest, 191.
Böhmerwald, 191 *n.* 4.
Bokhara, 265.
Bolan P., 276.
Bolivia, 350.
Bologna, 240, 244.
Bolsena, L., 241.
Bombay, 285, 286.
Bombay, Pres., 282, 284, 286.
Bonaire, 256, 342.
Bonn, 193, 194.
Boomplaats, 128.
Bora, the, 217.
Bordeaux, 61, 182, 220.
Borneo, 258, 289, 292.
Bornholm, I., 231.
Bornu, 144.
Boro Buddor, 290 *n.*
Bosch Veld, the, 134.
Boshof, 130.
Bosi, R., 140.
Bosnia, 214 *n.*, 249, 251, 252, 254.
Bosporus, 48, 252.
Boston, U.S., 333.
Bothnia, Gulf of, 219.
Boulogne, 180.
Bourbon, 151, 256.
Brabant, S., 190.
Bracciano, L., 241.
Bradford (York.), 174.
Brahmanism, 261.
Brahmaputra, R., 259, 278, 299.
Brak, R., 101.
Brand Vlei, 107.
Brandenburg, prov., 198.
Braunschweig, 199.
Brazil, 333, 345, 347, 354.
Breede, R., 102.
Bremen, 61, 196.
Bremerhaven, 61, 196.
Brenner Pass, 199, 205, 210, 217, 243 *n.* 2, 244.
Brenta, R., 242.
Breslau, 193, 198.
Brest, 181.
Brieg, 62.
Brienz, L., 208, 210.
Brighton, 172.
Brindisi, 247.
Brisbane, 308, 310.
Bristol, 161, 173.
British Columbia, 330.
British Isles, 45, 55 *n.* 2, 160–176.
Brittany, 178, 179, 180, 181, 217 *n.* 4, 254 *n.* 4.
Brooklyn, 333.

Bruges, 188, **189**.
Bruintjes Hoogte,109
Brundusium, **247**.
Brünn, **216**.
Brunswick, d., **196** *n.* 1.
Brunswick, tn. and d., **199**.
Brussa, **269**.
Brussels, **190**.
Buda-Pest, 61, **218**.
Buddhism, 261, **262**.
Buen Aire, **342**.
Buenos Ayres, pr., **351**.
Buenos Ayres, tn., **352**.
Buffalo, **333**.
Buffalo R., 102, **113**, 114, 133.
Buffels, R., **77**, **102**.
Bug, R., **220**, 225.
Bukarest, 61, **227**.
Bukovina, 212, **218** *n.* 1, 224, 226.
Bulgaria, 250, 251, **254**, 354.
Buluwayo, **125**.
Burdigala, 182.
Burghersdorp, 110.
Burgundian Gate, 184 *n.* 4, 299 *n.* 2.
Burgundian Plain, 195
Burgundian Plateau, 178.
Burgundy, 179, 183.
Burma, 284, **288**.
Burra Burra, **311**.
Bushire, **276**.
Bushman, R., 114.
Bushmen, 83, 84.
Bussora, 272.
Byzantium, **253**.

CADIZ, **238**.
Cagliari, **247**.
Cairo, **143**.
Cairo, U.S., **267**.
Calabria, **246**.
Calais, 180.
Calcutta, **284**, 285.
Caledon R., 70, 101, 122, 129.
Caledon, **106**.
Calicut, **286**.
California, 47, 332, 337.
Callao, **349**.
Calvinia, 100.
Cambay, Gulf of, 278.
Cambodia, 256, **289**, 290.
Cameroon Mts., 146.
Campagna, **246**.
Campania, 240, **246**.
Campos, **344**.
Canada, Dom. of, 165, **326–330**, 354.
Canal du Midi, 184.
Canary Is., 150, 256.
Candia, I., 253.
Candia, town, **254**.
Cango Caves, **70**.
Cannes, **184**.
Cannstadt, 199.
Cañons, **28**, 336.
Cantabrian Mts., **234**.
Canterbury Plains, **314**.
Canton, 297, **298**.
Canton, R., 298.
Cape Breton, **329**.
Cape Coast Castle, 147.
Cape Colony, 70, 88, **79–111**, 165,
Cape Lady Grey, 140.
Cape System, **74**.
Cape St. Francis, 99.
Cape St. Sebastian, 140.
Cape Town, 88, 95, 96, 103.
Cape Verde Is., 151, 256.
Capua, **247**.
Caraccas, **348**.
Cardamom Mts., **278**.
Cardiff, **173**.
Caribbean Sea, 342.
Caribs, 341.
Carical, 256.
Carmel, Mt., **269**.
Carnarvon, 100, 109.
Carniola, **217**.
Carnuntum, 215.
Carolina, 332, **335**
Caroline Is., 256, **320**.
Carpathian Mts., **211**, 250.
Carpentaria, Gulf of, 302.
Carrara, 241.
Cartagena, **237**.
Carthage, 145.
Carthago Nova, **237** *n.* 3.
Cascade Mts., **322**.
Casiquiare, 27 *n.* 1.
Caspian Sea, 219, 220, 259, **260**.
Castile, Old and New, 234, **238**.
Catalaunian Plain, **183**.
Catalonia, 236.
Catania, **247**.
Cathkin Peak, 113, 122.
Cauca, R., **343**.
Caucasia, **265**.
Caucasian type, **260**, 261.
Caucasus, Lieutcy., 256, **267**.
Caucasus Mts., 35, **266**, 275.
Cawnpore, **285**.
Cayenne, 256, **347**.
Cedarberg Mt., 99.
Celebes, 290, **292**.
Cenis, Mt., pass, **204**.
Cenis, Mt., tunnel, 243.
Central India Agencies, 283.
Central Provs., Ind., 284, 285.
Cerigo, **254**.
Cerro de Pasco, **349**.
Cetinye, **254**.
Cette, **184**.
Ceuta, 256.
Cevennes Mts., 176.
Ceylon, 165.
Châlons-sur-Marne, **183**.
Châlon-sur-Saône, **183**.
Chamounix, **200**.
Champagne, 179, **183**
Chandernagor, 256.
Charente, R., 182.
Charleston, **335**.
Charters Towers, 310.
Chatham Is., **313**.
Chemnitz, 193.
Cherbourg, **181**.
Chernagora, 249 *n.* 2.
Chesapeake Bay, **335**.
Chester, **173**.
Cheviot Hills, **167**.
Chicago, 61, 333.
Chile, **351**.
China, 42, 257, 277, **292–298**, 354.
China Sea, 42.
Chindè, 140.
Chinese, 261, 288, 290, 307, 311, 337, 342, 345.
Chinese Sea, E., **258**.
Chobè, R., 126.
Chopo Mt., 121.
Chopong Mt., 121.
Christiania, **230**.
Christianity, 261.
Chukchis, **264**.
Cilician Gates, **268**.
Cis-Caucasia, **267**.
Cis-Leithan crown-lands, **214**.
Cincinnati, 61, **334**.
Clanwilliam, **107**, 109.
Claremont, 105.
Clermont, **177**, 183.
Cleveland, U.S., **333**.
Clutha, R., **314**.
Coal, **34** *n.* 1.
Coast Range, N.A., 62.
Cochin-China, Fr., 266, **289**.
Cockscomb Mt., 99.
Coimbra, **236**.
Col di Tenda, 62, **204**.
Cold Wall, 47.
Colenso, 117.
Colesberg, **109**, 130.
Cologne, **193**, 194.
Colombia, **348**.
Colombo, **287**.
Colon, **348**.
Colonia Agrippina, 193.
Colorado, R., 336.
Colorado, st., **335**.
Columbia, Dist. of, **335**.
Comacchio, Val di, **241**.
Comino, **248**.
Como, L., 204, **240**.
Comorin, C., 277, 278.
Comoro Is., 151, 256.
Compass Berg, Mt., 100.
Congo Free State, **147**.
Congo, R., 116, **146**.
Connaught, **175**.
Connecticut, 332 *n.* 2.
Constance, L., 191, 206, 208.
Constantine, 145.
Constantinople, **251**, **252**.
Constantinople, Str. of, 252.
Continents, area and pop., 62.
Cook, Mt., **313**.
Cook, Str., **313**.
Coolies, **284**, 342.
Cooper's Creek, **305**.
Coorg, 284.
Copenhagen, **232**.
Copts, the, 68,
Coral, **33** *n.*
Corcyra, **254**.
Cordoba, pr. and tn., A.R., **351**.
Cordoba, Sp., 237.
Cordilleras, 343.
Corfu I., **254**.
Corfu, tn., **255**.
Corinth, isth., gulf. and town, **254**.
Cork, **176**.
Corsica, **184**.
Coromandel Ct., **286**.
Costa Rica, **340**.
Côte d'Or, **178**, 183.
Cracow, **218**.
Cradock, **110**.
Cremona, **243**.
Crete, 251, **253**,
Creuzot, **179**, 183.
Crimea, 225.
Crocodile, R., 133.
Croatia, 217, **218**.
Cronstadt, **225**.
Ctesiphon, **272**.
Cuba, **342**.
Cunene, R., 77, **187**.
Curaçoa, **342**.
Currents, Ocean, **45–48**.
Cutch, **286**.
Cuxhaven, **197**.
Cuzco, **350**.
Cyclades, **254**.
Cyphergat, **110**.
Cyprus, 166.
Cyrene, **144**.
Czernowitz, **218**.

DACCA, **282**.
Dahomey, 147.
Dalarne, **230**.
Dalmatia, 210, **217**, 252.
Daman, 256.
Damaraland, **137**, **138**.
Damaras, the, 138.
Damascus, 61, **270**.

Dannemora, 230.
Danube, R., 211, 212, 226, 248, 250, 251.
Danzig, 197.
Dardanelles, 253.
Dariel, Gorge of, 266.
Dar-es-Salam, 149.
Darfor, 143.
Darjiling, 280.
Darling, 304, 305.
Darling Downs, 310.
Dassen Island, 110.
Davis Strait, 47.
Dawson, 330.
Dead Sea, 270.
Debreczin, 218.
Delagoa Bay, 140, 256.
Delaware, st., 332 *n.* 2; R., 333.
Delgado, C., 68.
Delhi, 61, 285.
Delos, 254 *n.* 2.
Demerara, 347.
Denmark, 231, 232, 354.
Denmark, For. Pos., 255.
Derwent, R., Tas., 312.
Detroit, 333.
Devil's Peak, the, 103.
Devonport, 173.
Dew, 53.
Diaki, R., 126.
Diamantina, R., 305.
Dieppe, 180.
Dijon, 183.
Dilolo, L., 78.
Dinaric Alps, 210, 249.
Diu, 256.
Dividing Range, 303, 304, 308, 309.
Dnieper, R., 220.
Dniester, R., 212, 220, 225.
Dobruja, the, 226.
Dodona, 253.
Dome Peak, 62.
Dominica, 342.
Donetz, R., 223.
Don, R., Rus., 220.
Doorn, R., 102.
Dora Baltea, R., 204.
Dora Riparia, R., 204.
Dordogne, R., 182.
Dordrecht, 106, 110.
Dorpat, 226.
Dortmund, 193.
Doubs, R., 183.
Douro, R., 234.
Dover, Str. of, 160.
Dover, tn., 172.
Drakensberg Mts., 70 112, 115, 130, 132, 137.
Drakenstein Mts., 99.
Drau, R., 211.
Drave, R., 202, 211, 212.
Dravida (race), 283.
Dresden, 194, 198.
Drift-ice, 57.
Drin, R., 249.
Dry Harts, 118.
Dublin, 165, 176.
Dundee, 117.
Dundee, Sc., 175.
Dunedin, 315.
Dunkerque, 181.
Dunkirk, 181.
Durance, R., 202.
Durban, 116.
Düsseldorf, 194.
Dwarsberg Mts., 133.
Dwyka, R., 102.
Dwina, N., 220.
Dwina, W., 225.

Earth, Area of land and water surface, 24.
Earthquakes, 34.
Earth-tremors, 35.
Eastcourt, 117.
East London, 106.
Eastern Archipelago, 35, 42, 51, 274, 289.
Eastern Peninsula, 287 *n.*
Eastern Roumelia, 354
Ebro, R., 180, 234.
Echuca, 309.
Ecliptic, 19.
Ecuador, 343.
Edinburgh, 165, 174.
Egmont, Mt., 313.
Egypt, 59, 142–143, 256, 354.
Eider Canal, 197.
Eifel, 35, 192.
Eisenach, 200.
Eisleben, 200.
Ekaterinburg, 219, 264.
Elba, 241.
Elberfeld, 193.
Elbe, R., 195, 198, 211.
Elbe, R., towns on, 194
Elbruz, Mt., 266.
Elburz Mts., 35, 275.
Elche, 237.
Elefante, 286.
Elizabeth Bay, 137.
El Jezireh, 272.
Elsass-Lothringen, 195 *n.*
Embekelweni, 136.
England, 160–174.
English Channel, 160.
Enns, R., 202.
Entre Rios, 351.
Epernay, 183.
Ephesus, 269.
Epirus, 253.
Equator, 17.
Equinoxes, 20.
Erebus, Mt., 353.
Erfurt, 200.
Erie, L., 323, 326, 333.
Erivan, 267.
Er Rif, Mts., 146.
Erzberg, 216, 230 *n.* 1.
Erzerum, 267.
Erzgebirge, 191, 193.
Escaut, R., 186.
Eskimo, 328.
Essen, 193.
Estremadura, 234, 238.
Etna, Mt., 247.
Etchowe, 116, 123.
Etsch, R., 204, 216.
Eubœa, 254.
Euphrates, 270, 272.
Eurasia, 24, 323.
Europe, 41, 47, 152–256.
Eurotas, R., 255.
Evaporation, 49.
Everest, Mt., 62, 258.
Eyre, L., 305, 311.

Falkland Is., 166, 352.
False Bay, 69, 99.
Faroe Is., 232.
Faucilles, Mts., 178.
Fauresmith, 130.
Fayum, 142.
Feldberg, 62.
Fellata, 144.
Fen Country, 170.
Fernando Po, 151, 256.
Ferrol, 238.
Fez, 146.
Fezzan, 144.
Fichtelgebirge, 191.
Fiji Is., 166, 319.
Fingal's Cave, 167.
Fingoland, 111.
Finke, R., 311.
Finland, 221, 225, 259.
Finland, Gulf of, 219.
Finno-Tatars, 261.
Finns, 228.
Fiords, 223, 313.
Firn, 53 *n.*
Fish, Great, R., 328.
Fitzroy, R., Qd., 310.
Fitzroy, R., W. A., 311.
Fiume, 210, 217.
Flanders, 189.
Flinders Range, 310.
Florence, 244.
Florida, 291, 335.
Formosa, 300
France, 178–184, 332, 342, 354.
France, For. Pos., 256.
Franche Comté, 183.
Franconia, 199.
Franconian For., 191.
Frankenwald, 19 *n.* 2.
Frankfort, 199.
Franks, 180.
Franzensbad, 216.
Fraserburg, 100, 109.
Fray Bentos, 352.
Frederiksborg, 232.
Fredericton, 329.
Fremantle, 311.
Frio, C., 68.
Frisches Haff, 197.
Frisian Is., 196.
Fujisan, 300 *n.* 6.
Fujiyama, 300 *n.* 6.
Fulbeh, the, 144
Funchal, 150.
Fundy Bay, 45.
Funen, I., 231 *n.* 1.
Fu-niu-shan Mts., 294.
Furca Pass, 204.
Further India, 287 *n.*
Fusinoyama, 300.
Fusiyama, 300 *n.* 6.
Fyen, I., 231, 232.

Gaboon, R., 146, 256.
Gairdner, L., 305.
Galapagos Is., 348.
Galata, 252.
Galatz, 61, 227.
Galdhöppigen, 227.
Galicia, Aust., 212, 218, 224 *n.* 1, 226.
Galicia, Sp., 238.
Galilee, L. of, 270.
Gallipoli, 253.
Gambia, 146, 256.
Gamka, R., 102.
Gamtoos, R., 102.
Ganges, R., 38, 277.
Gansvlei, R., 133.
Ganyana, R., 126.
Garda, L., 240.
Gargano, 240.
Gariep, R. *See* Orange R.
Garonne, R., 182.
Gascony, 182.
Gauchos, 351.
Gaurisankar, 258 *n.* 3.
Gaya, 285.
Gcalekaland, 111.
Geelong, 309.
Geestemünde, 196.
Gellivara, 228 *n.* 3.
Geneva, 209.
Geneva, L., 206, 208.
Genoa, 188, 242, 244.
George, 106.
Georgetown, 347.
Georgia, 332 *n.* 2, 335.
Georgian Bay, 326.
Georgia, S., Is., 166.
German Empire, States of, 195.
German Ocean, 160, 206.
Germany, 191–200.
Germany, For. Pos., 256.
Geysers, 36.
Ghats, Eastern, 278.
Ghats, Western, 278.
Ghent, 188, 189.
Ghir, C., 146.
Ghor, The, 269, 270.
Giant's Head, 113, 122
Gibraltar, 166.
Gibraltar, Str., 48.
Gila, des., 336.
Gilbert Is., 320.
Gippsland, 308.
Gironde, The, 182.
Glaciers, 53.

Glasgow, 165, 174.
Glatkopjes Mt., 75.
Glenmore, 169.
Goa, 256.
Gobi, des., 300.
Godávari, R., 278.
Gokcha, L., 266.
Golconda, 286.
Golden Horn, 252 *n.* 3.
Gōta-elf, R., 230.
Gōteborg, 230.
Gotha, 200.
Gothenburg, 230.
Goths, 180, 235.
Gottland, 229, 230.
Goudini, 107.
Gouph, The, 100.
Gouritz, R., 102.
Gozo, 166, 248.
Graaff - Reinet div., 102.
Graaff-Reinet, 107.
Grahamstown, 107, 274.
Grampians, Sc., 169.
Grampians, Vic., 308.
Granada, 233, 237.
Gran Chaco, 344.
Grand Canal, Ch.,297.
Graz, 216.
Great Australian Bight, 302.
Great Barrier Reef, 69, 303, 318.
Great Basin, 62, 336.
Great Bear Lake, 323.
Great Britain, 24, 44, 301.
Great Fish R., 102, 136.
Great Karroo, 73, 100.
Great Kei R., 102.
Great Namaqualand, 136, 137.
Green Point, 103, 105.
Great Riet R., 101.
Great Salt Lake, 336.
Great Slave Lake, 323.
Great Wall of China, 299.
Greece, 251, 254, 354.
Greenland, 24, 255, 325, 337 *n.* 1.
Greenock, 175.
Greenwich, 18, 172.
Grenoble, 184, 204.
Greymouth, 315.
Greytown, 117.
Griqualand East, 111.
Griqualand West, 110.
Grisons, 208.
Groote R., 102.
Guadiana, R., 234.
Guadalajara, Mex., 339.
Guadalaviar, R., 237.
Guadalquivir, R.,234.
Guadarrama, Sierra de, 234 *n.* 1.
Guadeloupe, 256, 342.
Guanajuato, 339.
Guatemala, 340.
Guayaquil, 248.
Guam, 320.
Guiana, Br., 165, 347.
Guiana, Du., 256.
Guiana, Fr., 256.
Guienne, 182.
Guinea, Lower, 146, 256.
Guinea, Upper, 146.
Gujerat,, 278, 286.
Gulf Stream, 47, 51.
Gwalior, 285.
Gwelo, 125.
Gympie, 310.

HAARLEM, 190.
Hague, The, 190
Haidarabad, 286.
Hainan I., 292.
Hainaut, 190.
Haleb, 270.
Halifax, N.S., 329.
Halle, 198.
Halys, R., 268.
Hamburg, 194, 196.
Hamilton, Ont., 330.
Hammerfest, 230.
Hangchau, 297.
Hangchow, 297 *n.* 4.
Hanglip, C., 99.
Han-hai, 299, 300.
Hankau, 297.
Hankow, 297 *n.* 4.
Hanoi, 288.
Hanover, 109.
Hanover, town and prov., 198.
Hanse Towns, 196 *n.* 2.
Hantam dis., 91.
Hantam's R., 102.
Harrar, 61, 150.
Harrismith, 130.
Hartebeest, R., 78, 101.
Hartz Mts., 192, 193, 200.
Hartz, R., 78, 101, 118, 133.
Hastings, 172.
Haussas, 144.
Havana, 342.
Havre, 61, 181.
Hawaiian Is., 320.
Hay dis., 110.
Hay, or Griqua Town, 110.
Hayti, I. and rep., 342.
Hebrides, 167 *n.* 1.
Hebrides, Outer, 167.
Hecla, Mt., 232.
Heidelberg, 106.
Hejaz, 273.
Helder, 190.
Heligoland, 196.
Hellespont, 253.
Helpmakaar, 117.
Helsingfors, 225.
Hennops R , 133.
Herat, 276.
Herbert, dis., 110.
Herculaneum, 246.
Heri Rud, R., 276.
Hermopolis, 255.
Hervey Bay, 69.
Herzegovina, 214 *n.*, 251, 252, 254.
Hesse - Darmstadt, 195.
Hesse-Nassau, 199.
Hex River Mt., 107.
Hex River Pass, 99.
Highlands, Sc., 169.
High Veld, the, 134.
Himalayas, 34, 35, 52, 53, 258, 277, 280, 287.
Hinduism, 261, 283.
Hindu Kush Mts., 275.
Hinter-Rhine R., 204.
Hiogo, 301.
Hoang-hai, 294 *n.* 2.
Hoang-ho, 294.
Hobart, 312.
Hohe Tauern, 210.
Hohe Veenen, 187.
Holland, 184, 190, 196.
Holland, N. and S. provs., 190.
Honda, 348.
Hondo, 300.
Honduras, 340.
Honduras, Br., 165.
Hong-kong, 166, 298.
Honolulu, 320.
Hoogeveld, 133.
Hopetown, 109, 118.
Horizon, 16 *n.* 1.
Horn, C., 321, 352.
Hottentots, 83.
Hottentots' Holland Mts., 99.
Hovas, the, 151.
Hudson, R., 331, 333
Hudson's Bay, 327, 328.
Hue, 289.
Huelva, 234.
Húgli, R., 284.
Huleh, L., 270.
Hull, 161, 172.
Humansdorp div., 69.
Humber, The, 170.
Humboldt Current, 48, 51.
Hungary, 60, 211, 214, 218.
Hunter R., 309.
Huron, L., 323, 326.
Hurricanes, 41.
Hygab R., 101, 118.

IBEA, 149.
Iberian Peninsula, 232-240, 257, 273, 274.
Ichaboe Is., 110, 137.
Ice Age, 55 *n.* 2.
Icebergs, 55.
Iceland, 36, 47, 232.
Ichang, 294 *n.* 4.
Idutywa Reserve, 111.
Ijmuiden, 190.
Ij, R., 190.
Illinois, 333.
Ili, R., 265.
Illyria, 254 *n.* 4.
Illyrians, 251.
Ilmen, L., 224 *n.* 2.
India, 42, 51, 59, 257, 274, 276-287, 354.
India, British, 165.
Indian Ocean, 39, 42, 46.
Indians, American, 332, 345.
Indo-China, 42, 51, 287.
Indus, R., 259, 277.
Indwe, 95, 110.
Indwe R., 102.
Ingogo, 117.
Inn, R., 202, 204, 205, 206.
Innsbruck, 205, 217.
Interlaken, 210.
Intombi R., 123.
Invercargill, 315.
Inyack Is., 140.
Ionian Is., 254.
Ionian Sea, 248, 252.
Irania, 274.
Iranians, 261.
Irawadi, div., 288.
Irawadi, R., 288.
Ireland, 181.
Irish Sea, 160.
Irkutsk, 264.
Iron Gate, The, 250.
Irtish, R., 263.
Isandhlwana, 123.
Isar, R., 199.
Ischia, 246.
Iseo, L., 240.
Isère, R., 202, 204.
Iskenderun, 270.
Isker, R., 250.
Isothermal Lines, 50.
Ispahan, 276.
Istria, 210, 217, 218.
Italy, 200, 240-248, 258, 277, 354.
Italy, For. Pos., 256
Iviza, 240.

JAGERSFONTEIN, 130.
Jahde, The, 197.
Jaipur, 286.
Jalon, R., 240.
Jamaica, 342.
James River, 335.
Jansenville, div., 102.
Japan, 42, 300-301, 354.
Japan, Sea of, 258, 300.
Jassy, 227.
Java, 59, 290-292, 308.
Jedda, 274.
Jenil, R., 238.
Jerez, 238.
Jerusalem, 270.
Jersey City, 333.
Jews, 212, 252.
Jhelum, R., 287.
Joachimsthal, 216.
Jodpur, 286.

Johannesburg, 95, 134, 135.
Jokesky R., 133.
Jordan, R., 270.
Jostedalsbrae, 227.
Jub R., 148, 149.
Jucar, R., 238.
Judaism, 261.
Jumna, R., 285.
Jungfrau, 62.
Jura, Franconian, Mts., 191.
Jura, Mts., 176, 183, 191, 206.
Jutland, 185, 231.

KABUL, tn. and r., 276.
Kaffirland, 111.
Kaffirs, 83, 84.
Kaiser Wilhelm Land, 316.
Kalahari Des., 73, 122.
Kalk Bay, 105.
Kalmucks, 223.
Kaluga, 226.
Kama, R., 220.
Kambula, 123.
Kamiesberg Mts., 100.
Kamchatka, 48, 257.
Kandahar, 276.
Kanyè, 120.
Karachi, 286.
Kara Dagh, 249.
Karakorum Mts., 259.
Kareeberg, Mt., 99.
Karlsbad, 216.
Karlsruhe, 194.
Karnak, 142.
Karroo System, 74.
Kars, 267.
Karst, The, 217 *n.* 1, 249.
Kashgar, 299.
Kashmir, 277, 283, 287.
Katrine, Loch, 169.
Katmandu, 287.
Kattegat, 48, 229.
Kazan, 226.
Kazbek, Mt., 266.
Kei, R., 101, 111.
Keiskamma, R., 102.
Kelat, 276.
Kentucky, 335.
Kerkyra, 254.
Kermadec Is., 313.
Kertch, 225.
Kesho, 288.
Keswick, L., 170.
Khaibar P., 276, 277, 286.
Kharkof, 226.
Khartum, 144.
Kherson, 225.
Khingan Mts., 299.
Khiva, 265.
Khokand, 265.
Kiakhta, 263.
Kiauchou, 298.
Kief, 226.
Kiel, 197.
Killarney, Lakes, 175.
Kilwa, L., 127.
Kilwa, 149.
Kimberley Dist., 110.
Kimberley, 110, 129.
Kimberley Mine, 94.
King George's Sound, 302, 311.
King Sound, 311.
Kingston, Jam., 342.
King William's Town, 106, 109.
Kirghiz, 264, 265.
Kishinef, 226.
Kiusiu, 300.
Kiyoto, 301.
Kizil Irmak, 268.
Klausenburg, 218.
Klerksdorp, 95, 136.
Klip R., 133.
Klondike, 330.
Klopeng, 120.
Knysna, div., 69, 99.
Knysna, 106.
Komati R., 133.
Kokstadt, 111.
Köln, 193 *n.* 2.
Konieh, 269.
Königsberg, 197.
Kordofan, 143.
Korea, 49, 258, 298.
Kornet Spruit, dist., 123.
Kornet Spruit, R., 101, 122.
Korwè, 120.
Kosciusko Mountains, 303.
Kowie, the, or Port Alfred, 105.
Kowie, R., 102.
Kraai, R., 101.
Krefeld, 193.
Krishna, R., 278, 280.
Krom, R., 133.
Kromme, R., 102.
Kroonstad, 131.
Kuen-lun Mts., 62, 259, 294.
Kurds, 267.
Kurile Is., 48, 258, 300.
Kuisip, R., 137.
Kumasi, 144.
Kunanè Heights, 117.
Kurisches Haff, 198.
Kuro Siwo, 47, 51, 323.
Kurrachee, 286 *n.* 1.
Kur, R., 26, 266.
Kurrum Pass, 276.
Kuruman, 119.
Kuruman Hts., 117.
Kuruman R., 118, 120.
Kwango, R., 148.

LABRADOR, 327.
Labrador current, 47.
Labuan, 166, 292.
Laccadive Is., 286.
Laconia, 250.
Ladoga, L., 221.
Ladrone Is., 256, 320.
Ladybrand, 131.
Ladysmith, 117.
La Futa P., 244 *n.* 2.
Lagos, 146.
La Guayra, 348.
Lahore, 61, 285.
Laing's Nek, 117.
Lake Dis. (Eng.), 170.
La Mancha, 238.
Lamu, 149.
Land breezes, 38.
Landes, The, 182.
Land's End, 170.
Langeberg, Mts., 99.
Langres, Plat. of, 178.
Languedoc, 184.
La Paz, 351.
Lapilli, 35.
La Plata, est., 351, 352.
La Plata, town, 352.
Lapps, 228.
Larissa, 255.
Larnaca, 269.
La Rochelle, 182.
Latitude and longitude, 17.
Latium, 246.
Launceston, 312.
Lausanne, 209.
Lava, 35.
La Valletta, 248.
Lebanon Mts., 269.
Lech, R., 199.
Leeds, 174.
Leeuwin, C., 302.
Leeward Is., 342.
Leghorn, 246.
Legnago, 243.
Le Havre, 181.
Leiden, 190.
Leine, R., 58.
Leinster, 175.
Leipzig, 196, 199.
Leith, 174.
Leitha, R., 214.
Lek, R., 186
Lemberg, 218.
Lena, R., 263, 264.
Leon, 234.
Leontes, R., 270.
Leribè, dist., 123.
Levant, The, 217, 267.
Levkosia, 269.
Lhassa, 299.
Liau-ho, R., 298.
Liberia, 147.
Liebenberg, R., 129.
Liebenberg's Vlei, L., 129.
Liège, 188, 190.
Liguria, 244.
Likwa, R., 133.
Liimfiord, 231.
Lille, 179.
Lima, 349.
Limagne, The, 177.
Lima-Oroya Railway, 345.
Limoges, 182.
Limousin, 182.
Limpopo, R., 78, 120, 133, 140.
Linares, 234.
Lindesnaes, C., 230.
Linyanti, 126.
Linz, 215.
Lion's Head, The, 108
Lions, Gulf of, 206.
Lisbon, 236.
Lithuania, 226.
Lithuanians, 224.
Liverpool, 161, 173.
Livonia, 225.
Livorno, 246 *n.* 1.
Lizard Point, 170.
Llanos, 344, 348.
Loanda, 148.
Loangwa, R., 139.
Lob Nor, 81 *n.* 3.
Lobombo, Mts., 70
Lodi, 243.
Læss, 294.
Lofoden Is., 228, 230.
Loire, R., 176, 178.
Lôkoja, 144.
Lombardy, 243.
Lombok, 316.
Lomond, Loch, 169.
London, 161, 170, 171, 189, 196 *n.* 2.
London, Ont., 330.
Londonderry, 176.
Long Island, 333.
Lorient, 181.
Lorraine, 182.
Louisiana, 332, 335.
Louisville, 61, 335.
Lourenço Marques, 141.
Louvain, 190.
Lovedale, 109.
Low Archipelago, 42.
Lowell, 333.
Lower Guinea, Portuguese, 148.
Low Is., 320.
Lowry's Pass, 99.
Loyalty Is., 318.
Lübeck, 196, 197.
Lucerne, 210.
Lucerne, L., 208.
Lu Chu Is., 300.
Lucknow, 285.
Lugano, L., 240 *n.* 3.
Luia, R., 126.
Lulea, R., 228 *n.* 3.
Lupata Straits, 141.
Luxemburg, 200.
Luxor, 142.
Luzon, 292.
Lydenburg, 136.
Lyons, 178, 179.
Lyttelton, 315.

MAAS, R., 185, 186.
Macao, 257, 298.
Macdonnell Ranges, 311.
Macgillicuddy Reeks, 175.
Mackenzie, R., 327, 328.
M'Komoyas, R., 133.
Madagascar, 256.

Madagascar, Is., 151.
Madeira, 150.
Madeira, I., 256.
Madeira, R., 350.
Madibi, ht., 119.
Madras Pres., 284, 286.
Madras, town, 286.
Madrid, 238, 257.
Madumumbela, hills, 126.
Madura, 256.
Mafeking, 119.
Magaliesberg, Mts., 132.
Magdalena, R., 343, 348.
Magdeburg, 61, 198.
Magellan, Str. of, 352.
Maggiore, L., 202, 240.
Magyars, 212.
Mahánadi, R., 278, 284.
Mahé, 256.
Mahmudieh Canal, 143.
Mahon, 240.
Maimachin, 263, 300.
Main, R., 182, 192, 199.
Maine, st., U.S., 332, *n.* 2.
Mainz, 192, 194.
Majorca, 240.
Makalaka, 125, 126.
Makapan, Mts., 133.
Malabar Coast, 42, 286.
Malacca, 289.
Malacca, Str. of, 288.
Maladetta, 233.
Malaga, 237.
Mälar, L., 230.
Malay Arch., 289.
Malay Peninsula, 288.
Malays, 86, 261, 290.
Maldive Is., 287.
Malindi, 149.
Malmesbury, 102, 107.
Malmö, 230.
Malcja Pass, 204.
Malta, 166, 248, 300.
Maluti Mts., 122, 129.
Manaar, Gulf of, 287.
Manchester, 173.
Manchuria, 293, 298, 326.
Mandalay, 288.
Manica, 141.
Manica, R., 133.
Manilla, 292.
Man, Isle of, 167.
Manitoba, 327, 330.
Mannheim, 194.
Mantua, 243.
Maori, 315, 319.
Maponta, R., 133.
Marburg, 116.
March, R., 211.
Marches, The, 246.
Marianne Is., 320
Marico, 134.
Marienbad, 216.
Marion Hill, 116.
Maritza, R., 248, 253.
Maritzani, R., 118.
Marmora, Sea of, 251, 252.
Marne, R., 178.
Maros, R., 211, 218.
Marquesas Is., 256, 320.
Marseilles, 184.
Marshall Is., 256, 320.
Marsupials, 306.
Martaban, 288.
Martinique, 256, 342.
Maryland, 332 *n.* 2, 335.
Maschemala Mts., 133.
Maseru, 123.
Mashonaland, 124–127.
Mashonas, The, 127.
Maskat, 274.
Massachusetts, 332, 333.
Massaua (Massowah), 150.
Massi-Kesse, 139.
Massilia, 184.
Matabeleland, 77, 124, 127.
Matapan, C., 250.
Mauchberg Mt., 133.
Maulmain, 288.
Mauna Kea, 320.
Mauna Loa, 320.
Mauritius Is., 151.
Mayence, 192 *n.* 1.
Mayotte Is., 151, 256.
Mazoè, R., 126.
Meander, R., 268.
Mecca, 261, 274.
Mecklenburg-Schwerin, 195.
Mecklenburg-Strelitz, 195.
Medina, 274.
Mediterranean Sea, 34, 42, 45, 48.
Médoc, 182.
Meiring's Poort, 100.
Meissen, 194.
Mejerdah, 145.
Mekinez, 146.
Mekong, R., 288, 289.
Melanesia, 318.
Melbourne, 61, 309, 315.
Memel, 197.
Memphis, 143.
Menado, 292.
Menai Strait, 167.
Menam, R., 288, 289.
Menderes, R., 268.
Mentone, 184.
Mercury Is., 110, 137.
Meridians, 18.
Merom, Water of, 270.
Merv, 265
Meshed, 276.
Mesopotamia, 272.
Messenia, 250.
Messina, 247.
Meuse, R., 186.
Mexico, 323, 337, 354.
Mexico, Gulf of, 42, 47, 335.
Mexico, town, 339.
Michigan, 333.
Michigan, L., 323, 333.
Michigan, L., tides, 45.
Middleburg, 134.
Middlesbrough, 172.
Milan, 61, 200, 243.
Miletus, 269.
Milwaukee, 333.
Mincio, R., 243.
Minneapolis, 334.
Minnesota, 334.
Minorca, 240.
Minutes, 18.
Miquelon, 256.
Mischabelhorn, 62.
Mississippi, R., 62, 325, 335, 337.
Missouri, R., 331.
Missouri, st., 334.
Misti, Mt., 62.
Mistral, 184.
Mocha, 274.
Modder, R., 78, 101, 129.
Modena, 240, 244.
Mohammedanism, 68, 261.
Mohammera, 272, 276.
Mohave, des., 336.
Molapo, R., 78, 101, 118.
Molappo Mts., 122, 126.
Moldau, R., 211, 216.
Moldavia, 226, 227.
Molepolelè, 121.
Molteno, 110.
Moluccas, 290, 292.
Molyneux, R., 314.
Mombasa, 149.
Monaco, 184.
Monanjamabelè hts., 117.
Mondego, R., 236.
Mongolia, 300.
Mongolian type, 260, 261.
Mons, 188, 190.
Monsoon Region, Asia, 260.
Monsoons, 42, 279.
Montagu, 107.
Montagu Pass, 99.
Mont aux Sources, Mt., 70, 78, 122.
Montenegro, 249.
Monte Rosa, 62.
Montevideo, 352.
Montpellier, 184.
Montreal, 329.
Mooi, R., 114, 133.
Mooi River height, 113.
Moon, The, 19.
Moonta, 311.
Moors, 144, 235.
Moraines, 55.
Morava, Bulgarian, R., 249.
Morava, R., Aust., 211.
Morava, R., Servia, 248.
Moravia, 210, 214, 216.
Moravian Gate, 210.
Moray Firth, 169.
Morea, 249.
Morocco, town, 146.
Morocco, 145, 146.
Morosi's Mt., 123.
Moscow, 226.
Moselle, R., 192.
Moshowing, R., 118.
Moskva, R., 226.
Mossamedes, 148.
Mossel Bay, 105.
Mosul, 272.
Moulmein, 288.
Mount Hampden, 126.
Mount Ingwenya, 133.
Mount Kilimanjaro, 148, 149.
Mount Lofty Range, 310.
Mowbray, 105.
Mozambique, 139–141.
Mudzi, R., 126.
Mufa, R., 126.
Muizenberg, 105.
Mukden, 298.
Mulahacen, 238 *n.* 3.
Mülhausen, 199.
Mulhouse, 199 *n.* 4.
München, 199 *n.* 5.
Munich, 199.
Munster, 175.
Mur, R., 216.
Murcia, prov., 237.
Murghab, R., 265.
Murray, R., 304, 308.
Murraysburg, 109.
Murrumbidgee, 304.
Murviedro, 237.
Muscat, 274.
Mutassa, 140.
Mysore, st., 283, 286.
Mysore, town, 286.

NAGASAKI, 301.
Nagpur, 286.
Namaqualand, 100.
Nancy, 183.
Nanking, 297.
Nan-shan Mts., 299.
Nantes, 61, 181.
Naples, 246.
Narbonne, 184.
Narbada, R., 278.
Nari Pass, 276.
Natal, 88, 89, 96, 111-117, 165.
Navigator Is., 320.
Neckar, R., 192, 199
Negd, 273.
Negroponte, 254.
Nejd, 273, 274.
Nelson, R., 328.
Nemausus, 184.

Nepal, 283, 287.
Netherlands, 184–190, 195, 342, 354.
Netherlands, For. Pos. 256.
Neuchâtel, L., 208.
Neusiedler-see, 212.
Neva, R., 220, 225.
Nevada, st., 336.
Névé, 53 *n.*
New Britain, 256.
New Brunswick, 329.
New Caledonia, 318.
Newcastle, 117.
Newcastle, Eng., 172.
Newcastle, N.S.W., 309, 311.
Newchwang, 298.
New England States, 332 *n.* 2.
Newfoundland, 49, 165, 330.
New Guinea, 166.
New Hampshire, 332.
New Hanover, 256.
New Hebrides, 318.
New Jersey, 332, 333.
New Orleans, 335.
New Ross, 169.
New Siberian Is., 263.
New South Wales, 307, 309, 310.
New York, st., 332 *n.* 2, 333.
New York, tn., 333.
New Zealand, 86, 165, 307, 312, 317.
Ngaurohoe, 313.
Niagara, Falls of, 327.
Nicaragua, 340.
Nice, 184.
Nicobar Is., 284.
Nicopolis, 254.
Nicosia, 269.
Nieuwveld, Mts., 100.
Nigeria, 146.
Niigata, 301.
Nikolaief, 225.
Nile, R., 142–144.
Nilgiri Hills, 278.
Nineveh, 25, 272.
Nismes, 183.
Niuchwang, 298.
Nizam's Dom., 286.
Nizhni-Novgorod, 226
Normandy, 178, 181.
North Island, The, N. Zd., 313.
North Pole, 17.
North Sea, 160.
North-West Passage, 326.
North-West Prov., Ind., 277, 280, 284, 285.
Norway, 217 *n.* 4, 227, 230, 254 *n.* 4, 260, 354.
Nosob, R., 120, 136.
Nossibé, 256.
Nottingham, 174.
Noumea, 318.
Nova Scotia, 329.
Novaya Zemlya, 219.
Nova Zembla, 219.
Novgorod, 224.
Novi-Bazar, 254.
Nubia, 143.
Numea, 318.
Nürnberg, 199, 263.
Nyassaland, 126.
Nylstroom, R., 133.

Ob, R., 263, 264.
Obi, R., 263.
Obock, 150, 256.
Ocean ice, 57.
Ocean, Temperature of, 43.
Ocean, The, 42-49.
Odense, 232.
Oder, R., 193, 194, 198.
Odessa, 225.
Ofen, 218.
Ohio, R., 62, 332, 335.
Ohio, st., 332, 333.
Oka, R., 226.
Okhotsk, Sea of, 48, 257, 264, 300.
Oldenburg, 195, 197.
Oldham, 174.
Old World, 321.
Olifant's R., 101, 102, 130.
Olifant's River Mts., 99.
Oman, 273.
Oman, Gulf of, 273.
Onega, L., 221.
Ongars, R., 101.
Ontario, pr., 330.
Ontario, L., 323, 330.
O'okiep, 94, 109.
Oporto, 236.
Oran, 145.
Orange R., 70, 73, 77, 78, 101, 118, 122, 129.
Orange Riv. Col., 88, 89, 127–131.
Orinoco, R., 27 *n.* 1, 342, 343, 344, 347.
Orissa, 284, 285.
Oristano, Bay of, 247.
Orkney and Shetland, 167.
Orléannais, 182.
Orléans, 181, 182.
Orontes, R., 269, 270.
Oroya, 345.
Orsova, 250.
Osaka, 301.
Ostende, 189.
Osterdal, 230.
Ostyaks, 264.
Otago, 315.
Ottawa, tn., 329.
Oudh, 284, 285.
Oudtshoorn, 102, 107.
Oup R., 120, 136.
Ouse, R., 170.
Outeniqua Mts., 99.
Ovampos, The, 138, 139.
Ovampoland, 138, 139.
Owen Stanley, Mt., 316.

Paarl, The, 106.
Pacific Ocean, 85 *n.* 3, 39, 42, 48, 56.
Padua, 244.
Pago-pago, 320.
Painted Desert, 336.
Palapyè, 121.
Palermo, 247.
Palestine, 269.
Palghat Gap, 278, 279.
Pamir Plateau, 275, 299.
Pampas, 344.
Panama, isth., 348.
Panama, town, 348.
Papua, Gulf of, 318.
Papuans, 316, 318.
Paraguay, R., 343, 344.
Paraguay, st., 352.
Parana, R., 343, 351.
Paris, 181.
Parma, 240, 243, 244.
Parnassus, Mt., 249.
Parramatta, 309.
Parsis, 262, 286.
Patagonia, 351.
Patna, 284.
Patras, 255.
Pau, 182.
Pauillac, 61, 182.
Pavia, 243.
Paysandu, 352.
Peace, R., 327, 328.
Pechili, Gulf of, 294.
Peelans, 120.
Pegu, tn. and div., 288.
Peiho R., 297.
Peipus, L., 221
Peking, 294, 297, 299.
Pelew Is., 256, 320.
Pella, 101.
Peloponnesus, 249.
Pemba, Is., 148.
Peneios or *Peneus*, 249.
Pennine Chain, 169.
Pennsylvania, 332 *n.* 2, 333, 334.
Penguin I., 137.
Pentland Firth, 167.
Pepper Coast, 147.
Pera, 252.
Perie Bush, The, 100.
Perm, 219, 264.
Pernambuco, 347.
Persepolis, 276.
Persia, 267, 275.
Persian Gulf, 272, 276.
Perth, Sc., 175.
Perth, W. A., 311.
Peru, 322, 349.
Peru, Upper, 350.
Peruvian Current, 48, 51.
Peschiera, 243.
Peshâwar, 281, 286.
Petchora, R., 220.
Pharpar, R., 270.
Phasis, R., 266.
Philadelphia, 333.
Philippine Is., 256, 290, 292.
Philippopolis, 250, 254.
Phillipolis, 130.
Phocæa, 269.
Phœnicia, 269.
Piacenza, 240, 243.
Picardy, 181.
Pienaars, R., 133.
Pietermaritzburg, 116
Pietra Mala, P., 244 *n.* 2.
Pile-dwellings, 316.
Pilot's Peak, 62.
Pindus Chain, 249.
Pinetown, 116.
Pinsk Marshes, 220.
Piquetberg, 107.
Piræus, 255.
Pisa, 246.
Pittsburg, 334.
Plattensee, 212.
Plenty, Bay of, 314.
Plymouth, 173.
Pniel, 110.
Poitiers, 181, 182.
Poitou, 182.
Poland, 218, 223, 224.
Polders, 186, 193.
Polynesia, 318.
Polynesians, 307.
Pomerania, 197.
Pompeii, 246.
Pondicherry, 256.
Pondoland, 110.
Pongola, R., 133.
Pontine Marshes, 246
Po, R., 38, 206, 242.
Poree, 285.
Port Adelaide, 311.
Port Arthur, 298.
Port Dalrymple, 312.
Port Darwin, 308.
Port Elizabeth, 105, 106.
Port Hamilton, 298.
Port Jackson, 309.
Port Moresby, 318.
Port Natal, 69.
Port Nolloth, 109.
Porto Cabello, 348.
Porto Rico, 256, 342.
Port Phillip Bay, 309.
Port Said, 143.
Port St. John's, 111.
Portsmouth, 173.
Portugal, 236, 256, 354.
Posen, tn., 198.
Posen, prov., 195, 224.
Possession I., 110.
Potchefstroom, 136.
Poti, 266.
Potomac, R., 335.
Potosi, 350.
Potsdam, 198.
Potteries, The, 174.
Praga, 226.
Prague, 216.
Pregel, R., 197.
Presidios, 256.
Pretoria, 132, 134, 135

Prince Albert, 107.
Prince Edward Island, 329.
Prince's I., 256.
Principe, I., 151, 256.
Pripet, R., 220.
Procida, 246.
Prome, 288.
Provence, 184.
Provincia, 184.
Prussia, 195, 198, 354.
Prussia, E.,prov.,197.
Prussia, W., prov., 195, 197.
Pruth, R., 226.
Puebla, 339.
Puget Sound, 337.
Pulque, 339.
Puna, 286.
Pungwe, R., 140.
Punjab, 280, 281, 282, 284, 285.
Puri, 285.
Pusstas, 211, 225.
Pyramids, the, 142.
Pyrenees, 176, 250.

QUANG-TUNG, 298.
Quarnero, Gulf of, 210, 217.
Quathlamba Mts., 70, 101, 113, 122.
Quebec, 327, 329.
Quebec, tn. and prov., 329.
Queensland, 307.
Queenstown, 106, 110.
Queenstown, Ir., 176.
Quetta, 276.
Quilimane, 141.
Quito, 348.
Quitteboeuf, 180 *n.* 2.
Quthing, dist., 123.

RAINY L. and R., 327.
Rajputana, 283, 286.
Ramatlabami R., 118.
Rangoon, 288.
Raniganj, 282.
Ratisbon, 191, 199.
Ravenna, 244.
Ravi, R., 285.
Recife, 347.
Red River (of the North), 327.
Red River, I.-C., 288.
Red River (trib. Mississippi), 331.
Red Sea, 42, 48, 273.
Regensburg, 199.
Regina, 330.
Registry, The, 72.
Reikjavik, 232.
Reims, 183.
Reno, R., 244, *n.* 2.
Réunion, 256.
Reuss, R., 204.
Revel, 225.
Rhenoster Spruit, R., 129.
Rhine, Krumme, 190.
Rhine, Old, R., 190.
Rhine Pr., 193.
Rhine, R., 62, 185, 186, 192, 194, 202, 206.
Rhode Island, 332 *n.* 2.
Rhodope Mts., 250.
Rhone, R., 178, 202, 204, 206.
Rias, 233.
Richmond, 109, 117.
Richmond, U.S., 335.
Riesengebirge, 192.
Riet, R., 129.
Riga, 225.
Riga, Gulf of, 219.
Rigi, Mt., 210.
Rimini, 240.
Rio de Janeiro, 347.
Rion, R., 26, 266.
Rio Tinto, 234.
Riu-kiu Is., 300 *n.* 3.
Riverina, 309.
Rivers, 26–28.
Riversdale, 106.
Riviera, The, 244.
Roads, 60.
Roaring Forties, 41.
Robben Island, 110.
Robertson, 107.
Rockhampton, 310.
Rocky Mountains, 27, 28, 322, 325.
Roggeveld Mts., 100.
Rokitno Marshes, 220.
Rome, 59, 217, 246.
Rondebosch, 105.
Rorke's Drift, 117, 123.
Rosa, Monte, 204.
Rosebank, 105.
Rotomahana, L., 314.
Rotterdam, 196.
Rotumah, 320.
Roubaix, 179.
Rouen, 61, 181.
Roumania, 226, 354.
Roumelia, E., 250, 254.
Rovuma, R., 149, 302.
Ruapehu, Mt., 313.
Ruenyi, R., 126.
Rumonsh, 209.
Russia, 53, 58, 60, 219–226, 267, 332 *n.* 1, 354.
Russia, minerals, 223.
Russian Cent. Asia, 256, 264.
Rustchuk, 254.
Rustenberg, 132, 134.
Ruthenians, 218.

SAALE, R., 195, 198.
Sabi, R., 133, 139, 140.
Sacramento, R., 337.
Saguntum, 237.
Saigon, 256, 288.
Sakhalin, 48.
Salamvria, R., 249, 255.
Saldanha Bay, 69.
Salonica, 248, 253.
Salsette, 256, 286.
Salt Lake City, 336.
Salt Lakes, 31.
Salt water, Freezing of, 57.
Salwin, R., 288.
Salzburg, 216.
Salzkammergut, 215 *n.* 3.
Samarkand, 265.
Sambre, R., 186.
Samoan Is., 320.
Samos, 256, 269.
Samoyedes, 264.
Sandaapies, R., 133.
Sandarbans, The, 280.
Sand-dunes, 25.
San Domingo, 342.
Sand, R., 129, 133.
Sands, 120.
Sandwich Harbour, 137.
Sandwich Is., 320.
San Francisco, 61, 309, 337.
San Francisco, R., 62.
San Joaquin, R., 337.
Sanpu, R., 299.
San Remo, 244.
San Salvador, Braz., 347.
San Salvador, Cent. Am., 340.
Santa Cruz I., 255, 342.
Santa Fé, prov., 351.
Santander, 238.
Santiago, 351.
Saône, R., 183.
Saracens, 241.
Saráwak, 292.
Sardinia, I., 247.
Sardinia, kgd., 243.
Sargasso Sea, 47 *n.* 5.
Saskatchewan, R., 327.
Savannah, 335.
Save, R., 211, 212, 218, 248, 251.
Savoy, 183.
Saxe-Altenburg, 196*n.*
Saxe-Coburg-Gotha, 196 *n.* 1.
Saxe-Meiningen, 196.
Saxe-Weimar, 195.
Saxon Switzerland, 199.
Saxony, kgd., 193, 194, 195, 354.
Saxony, prov. Prus., 198, 200.
Scandinavia, 200, 227–230, 231.
Scandinavian origin, Names of, 180 *n.* 2.
Scheldt, R., 185, 186, 189.
Schleswig-Holstein, 197.
Schwarzawa, R., 216.
Scotland, 160.
Scutari, L., 249.
Scutari, town, Asia Minor, 269.
Sea-breezes, 38.
Sea Point, 105.
Seasons, 19.
Sebastopol, 225.
Se-chwan, 295.
Seconds, 18.
Seeland, I., 231, 232.
Seine, R., 178, 180.
Selenga, R., 263.
Seleucia, Mesop., 272.
Seleucia, Syr., 270.
Selvas (of the Amazon), 344.
Semitic langs., 261.
Semmering Pass, 205.
Sena, 141.
Senegal, R., 146.
Seraing, 190.
Serayevo, 254.
Sereth, R., 226.
Servia, 251, 254, 354.
Seul, 298.
Seven Weeks Poort, 99.
Severn, R., 170.
Seville, 61, 234, 237.
Seychelle Is., 151.
'S Gravenhage, 190.
Shamatshama, 141.
Shamo, 300.
Shanghai, 297.
Shannon, R., 175.
Shan-si, 294 *n.* 1.
Shan States, 289.
Shan-tung, 294.
Shar Dagh, 249.
Shark Is., 137.
Sharon, Plain of, 269.
Shiites, 276.
Shipka Pass, 250.
Shiraz, 276.
Shire, R., 127.
Shirwa, L., 127, 139.
Shoshong, 120, 121.
Siam, Gulf of, 258, 288.
Siam, kgd., 289.
Siberia, 60, 256, 262.
Siberian Plains, 62.
Sicily, 241, 247.
Sidon, 270.
Siena, 246.
Sierra Leone, 146.
Sierra Morena, 233.
Sierra Nevada, U.S., 62, 295, 322, 336.
Sierra Nevada of Santa Marta, 343.
Sierra Nevada, Sp., 233.
Sikhs, 285.
Si-kiang, R., 298.
Sikoku, 300.
Silesia, Aust., 210, 216.
Silesia, Prus., 193, 195.
Simla, 286.
Simon's Town, 88, 105.
Simplon Pass, 204.
Sinai, Mt., 273, 274.
Sind, 284, 286.
Sindhia's Dominion, 285.

Singapore, 289.
Sinter, Siliceous, 30.
Sir, R., 265, 299.
Sitlagoli, R., 118.
Siut, 142.
Siwah, Oasis of, 142.
Skager Rak, 228.
Skerries, 228.
Skodra, L., 249.
Slavonia, 218.
Slavs, 195, 212, 251.
Smith Sound, 326.
Smyrna, 269.
Smithfield, 180.
Sneeuwberg, Mts., 100, 102.
Snow-line, 53.
Society Is., 256, 320.
Socotra, 166.
Soerabaja, 292 *n.* 2.
Sofala, 140, 141.
Sofia, 248, 254.
Sókoto, 144.
Solomon Is., 318, 320.
Somali Land, 150.
Somerset, East, 109.
Somerset, West, 106.
Somme, R., 180.
Song-koi, R., 288, 289.
Sorata, Mt., 62.
Soudan, Egypt., 143.
Soudan, Indep., 144.
Sound, The, 231.
South African Rep., 88, 89.
Southampton, 173.
Southern Alps, 313.
South Australia, 307, 310.
South Island, The, N. Zealand, 313.
South Pole, 17.
Spain, 236–240, 256, 332, 354.
Sparta, 255.
Spence Bay, 137.
Spencer Gulf, 302, 310.
Spezia, 246.
Spice Is., 292.
Spires, 194.
Spitzbergen, 219 *n.* 1.
Splügen Pass, 199, 204, 209.
Sporades, 254.
Spree, R., 198.
Springs, 30.
Srinagar, 287.
St. Anthony, Falls, 334.
St. Bernard, Great, Pass, 204.
St. Croix, Is., 105, 110.
St. Etienne, 179, 183.
St. George's, R., 133.
St. Gothard Pass, 204.
St. Gothard Tunnel, 243.
St. Helena, I., 151.
St. John I., 255.
St. John's, 329.
St. John's, Newfound-*land, 330.*
St. John's R., 102, 106.
St. Lawrence, R., 327, 329.
St. Louis, 61, 334.
St. Lucia Bay, 124.
St. Lucia, L., 124.
Ste. Marie, 256.
St. Martin I., 256.
St. Nazaire, 61, 182.
St. Paul, 61, 334.
St. Petersburg, 224, *n.* 2, 225.
St. Pierre, 256.
St. Thomas, I., 151, 256.
St. Thomas, W.I., 342.
St. Vincent, Gulf, 310.
Staffa, I., 167.
Stalactite, 29.
Stalagmite, 29.
Stanger, 116.
Stanley Falls, 147.
Stanley Pool, 147.
Stanovoi Mts., 262.
Stanthorpe, 310.
Stassfurt, 194.
Stellenbosch, 106.
Steppes, 58, 223.
Sterkstroom, 95.
Stettin, 197.
Stewart I., 313.
Stockholm, 230.
Stormberg Spruit, R., 101.
Stormberg, Mts., 100.
Straits Settlements, 166.
Strand, The, 106.
Strassburg, 194, 199.
Stratford-upon-Avon, 174.
Stuttgart, 199.
Styria, 205, 216.
Suabian Alps, 191, 199.
Suakim, 144.
Suchau, 299.
Sucre, 351.
Sudetes Mts., 193, 210.
Suez Canal, 143.
Suez, Gulf of, 273.
Sulaiman Mts., 275.
Sulu Is., 256.
Sulu Arch., 290.
Sumatra, 258, 289, 292.
Sunda Is., 290.
Sunda Is., Lesser, 292.
Sunday, R., 69, 102, 114.
Sunnites, 276.
Superior, L., 323, 327.
Surabaya, 292.
Surat, 286.
Surinam, 256, 347.
Suva, 320.
Svealand, 229.
Swakop, R., 137.
Swan, R., 311.
Swansea, 173.
Swaziland, 136.
Swazi System, 74.
Sweden, 227, 229, 354.
Swedes, 224.
Swinemünde, 197.
Switzerland, 205, 210, 317, 354.
Sydney, 61, 309, 315.
Syracuse, 247.
Syra, I., 255.
Syria, 256, 268, 269.
Szegedin, 218.

TABLE BAY, 49, 69, 86.
Table Mtn., 70.
Tabriz, 267, 276.
Taganrog, 225.
Tagus, 234.
Tahiti, 256, 320.
Tamar, R., Tas., 312.
Tamil (lang.), 283
Tanganyika, L., 127.
Tapti, R., 278, 286.
Tarai, The, 280.
Tarim Basin, 62, 299.
Taro 217 *n.*
Tashkent, 265.
Tasmania, 165, 307, 312.
Tatars, 223.
Tati, 125.
Tatra, Mts., 211.
Taungs, 119.
Taupo, L., 313.
Taurus Mts., 268.
Taygetos, Mt., 250.
Teheran, 276.
Tehuantepec, isth., 339.
Telemachus Kop Mt., 75.
Tell, The, 145, 146.
Telugu (lang.), 283.
Tembuland, 111.
Temesvar, 218.
Temperature, Variations of, 25.
Tenasserim, 288.
Teneriffe, 40, 150.
Termites, 57.
Tetè, 126, 141.
Texas, 325, 332.
Texel, I., 185.
Tezcuco, L., 339.
Thaba Bosigo, dist., 123.
Thaba' Nchu, 130.
Thames, R., 170.
Theiss, R., 28, 211, 218.
Thessaly, 249, 254.
Throndhjem, 230.
Thun, L., 206, 208, 210.
Thüringerwald, 191.
Thuringian Forest, 191, 200.
Thuringian States, 200
Tian-Shan Mts., 35, 259, 264, 299.
Tiber, R., 246.
Tibet, 62, 277, 299.
Ticino, R., 204, 243.
Tides, 43, 44.
Tientsin, 297.
Tierra del Fuego, 352.
Tiflis, 61, 266, 268.
Tigris, 267, 272.
Timbuktu, 144.
Timok, R., 250.
Timor, 256, 292.
Tirnova, 250.
Titicaca, L., 349, 350.
Tobolsk, 263, 264.
Togo Land, 147, 256.
Tokiyo, 300, 301.
Toledo, 238.
Toledo, Sierra, 234.
Toltecs, 339.
Tomsk, 264.
Tonga Is., 320.
Tongariro, Mt., 313.
Tongking, 256, 289.
Tongking, Gulf of, 258.
Tönning, 197.
Toowoomba, 310.
Toronto, 330.
Torrens, L., 305.
Torres Str., 303, 310.
Toul, 183.
Toulon, 184.
Toulouse, 184.
Toundras, 222, 263, 326.
Touraine, 182.
Tourcoing, 179.
Tours, 182.
Touws R., 102.
Townsend, Mt., 303.
Trade-winds, 39.
Trans-Caspian Territory, 256, 265.
Trans-Caucasia, 267.
Trans-Leithan crown-lands, 214, 218 *n.* 2.
Transvaal, the, 88, 89, 95, 131–135.
Transylvania, 211, 218.
Trasimeno, L., 241.
Trebizonde, 267.
Trent, R., 170.
Trent, town, 205, 217.
Trieste, 205, 210, 217.
Trieste, Gulf, 210.
Trinidad, 342.
Tripoli, 144.
Tristan da Cunha, 151.
Tromsö, 230.
Tropics, 20;—*Vegetation of*, 57.
Tugela R., 113, 114.
Tula, 226.
Tuli, 126.
Tunis, 144, 145.
Tunis, town, 145.
Tunja, R., 253, *n.* 2.
Turin, 62, 204, 243.
Turkey-in-Asia, 267, 268.
Turkey-in-Europe, 252, 354.
Turkestan, E., 299.
Turtle Is., 348.
Tuscany, 240, 244.
Two Ocean Pass, 27.
Typhoons, 41, 292.
Tyre, 270.
Tyrol, 205.
Tyumen, 264.
Tzitza, R., 102.
Tzitza Waterfall, 101.

Tsitzikamma Mts., 99.

UGANDA, 149.
Uitenhage, 106.
Uitenhage, div., 102.
Ulm, 61, 199.
Ulster, 175.
Ulundi, 123.
Umbilo Waterworks, 116.
Umbria, 246.
Umfulè, R., 126.
Umgeni, R., 114.
Umkomanzi, R., 114.
Umkosi, R., 124.
Umlazi, R., 114.
Umtamvuna, R, 68, 97, 102.
Umtali, 125, 126.
Umtata, 111.
Umvolosi, R., 124, 133.
Umvoti, R., 114.
Umzimkulu, R., 114.
Umzimvubu, R., 101.
Umyati, R., 126.
United Kingdom, 308, 354.
United States, 60, 337, 354.
Unyoro, 149.
Upsala, 230.
Ural Mts., 200, 219.
Uri, Bay of, 204.
Uruguay, R., 351.
Uruguay, st., 352.
Urumia, 266, 267.
Usagara, 256.
Usedom, I., 197.
Usküb, 249.
Usuta, R., 133.
Utah, 336.
Utrecht, 190.

VAAL, R., 78, 101, 118, 129, 133.
Valais, Alps of, 202.
Valdai Hills, 219.
Valencia, Gulf of, 240.
Valencia, prov. and town, 237.
Valladolid, 238.
Valparaiso, 351.
Valsch, R., 129.
Van Diemen's Land, 312.
Van, L., 266, 267.
Van Renen's Cove, 137.
Van Zyl's Vlak, 72.
Van Wyk's Vlei, 101.
Vardar, R., 249.
Varna, 254.
Vecht, R., 190.
Venezuela, 343, 347.
Venice, 188, 217 *n.* 1, 242, 243, 252.
Vera Cruz, 339.
Verdun, 183.
Verloren, R., 102.
Vermont, 332 *n.* 2.
Verona, 243.
Versailles, 181.
Verulam, 116.
Verviers, 190.
Vesuvius, Mt., 246.
Vet, R., 129.
Via Æmilia, 240.
Via Mala, 204.
Victoria, S. Af., 126.
Victoria, Br. Col., 330.
Victoria, Col. of, 308.
Victoria Falls, 68, 78, 126.
Victoria, Hg.-kg., 298.
Victoria Nyanza, 148, 149.
Victoria, West, 109.
Vienna, 205, 215.
Vierfontein, 131.
Vilna, 226.
Virginia, 332 *n.* 2, 335.
Virginia City, 336.
Virgin Is., 342.
Visigoths, 180, 235.
Vistula, R., 294, 212, 218, 226.
Viti Levu, 319.
Vladikavkas, 266.
Vlieland, I., 185.
Volcanoes, 35.
Volga, R., 220.
Volturno, R., 247.
Vogesen, Mts., 191.
Vosges, Mts., 178, 191, 194.
Vryburg, 119.

WAAL, R., 186.
Wahsatch Mts., 336.
Waikato, R., 214.
Wales, 160, 181.
Wallace's Line, 316.
Wallachia, 226, 227.
Wallenstadt, L., 228.
Walloons, 189.
Walvisch Bay, 69, 111, 137, 256.
Warmbad, 134.
Warsaw, 226.
Warta, R., 198.
Washington, 335.
Waterberg, Mts., 133.
Waterloo, 190.
Water-parting, 26.
Waterval, R., 133.
Watten, 196 *n.* 3.
Weenen, 117.
Weihaiwei, 298.
Weimar, 200.
Wellington, 315.
Wener, L., 228, 230.
Wepener, 131.
Weser, 192.
West Australia, 307.
Westerdal, 230.
West Indies, 41, 165, 341, 342.
Westminster, 172.
Westphalia, 193.
Westport, N. Zd., 315.
Wetter, L., 228, 230.
Whale Bay, 137.
White Sea, 219.
Widdin, 254.
Wieliczka, 218.
Wight, I., 167.
Wilge, R., 129.
Wilhelmshaven, 197.
Willowmore, 107.
Wilson's Promontory, 302.
Wimmera, 308.
Winburg, 131.
Windermere, L., 170.
Winds, 38-42, 50.
Windsor, 174.
Windward Is., 341.
Winnipeg, L., 323.
Winnipeg, R., 327.
Winnipeg, tn., 330.
Winterberg Mt., 100.
Winterhoek Mt., 99.
Wisby, 230.
Wisconsin, 333.
Wismar, 197.
Wittebergen Mt., 129.
Woods, L. of the, 326.
Woodstock, 103.
Worcester, 107.
Würtemberg, 191, 195, 196, 199, 354.
Wusung, R., 297.
Wynberg, 105.

XENIL, 288 *n.* 1.
Xerez, 288 *n.* 1.

YABLONOI Mts., 262.
Yaila Mts., 225.
Yakuts, 264.
Yakutsk, 264.
Yams, 317 *n.*
Yanaon, 256.
Yang-tse-kiang, 294
Yanina, 253.
Yarkand, 299.
Yarra, R., 309.
Yellow River, 294.
Yellow Sea, 258, 294.
Yellowstone Region, 27 *n.* 2, 336.
Yemen, 273.
Yenisei, R., 263.
Yezd, 276.
Yezo, 49, 300, 330.
Yokohama, 301.
Yonne, R., 178.
York, C., 302, 315.
Yucatan, 339.
Yukon, R., 337.
Yukon Terr., 330.
Yün-nan, 297.
Yvetôt, 180 *n.* 2.

ZAK, R., 101.
Zambezi, R., 68, 78, 126.
Zambezi delta, 140, 141.
Zante, 254.
Zanzibar Is., 148.
Zaragoza, 240.
Zebedelè Mts., 133.
Zeekoe, R., 101.
Zehlaba, R., 133.
Zeila, 150.
Zerafshan, R., 265.
Zirknitz, L., 31, 217.
Zimbabye, 126.
Zonder Einde Mts., 99.
Zones, 21-22.
Zoroastrianism, 261, 262, 276.
Zoutpansberg, dis., 93.
Zoutpansberg Mts., 133, 134.
Zuider Zee, 185, 190.
Zululand, 88, 123, 124
Zumbu, 126, 141.
Zürich, tn., 209.
Zürich, L., 208.
Zuurberg Mt., 99.
Zwagershoek Mts., 100.
Zwartberg Mt., 70, 99, 100, 106.
Zwart Doorn, R., 102
Zwart Kei, R., 103.
Zwittawa, R., 216.

Printed by BALLANTYNE, HANSON & CO.
Edinburgh & London